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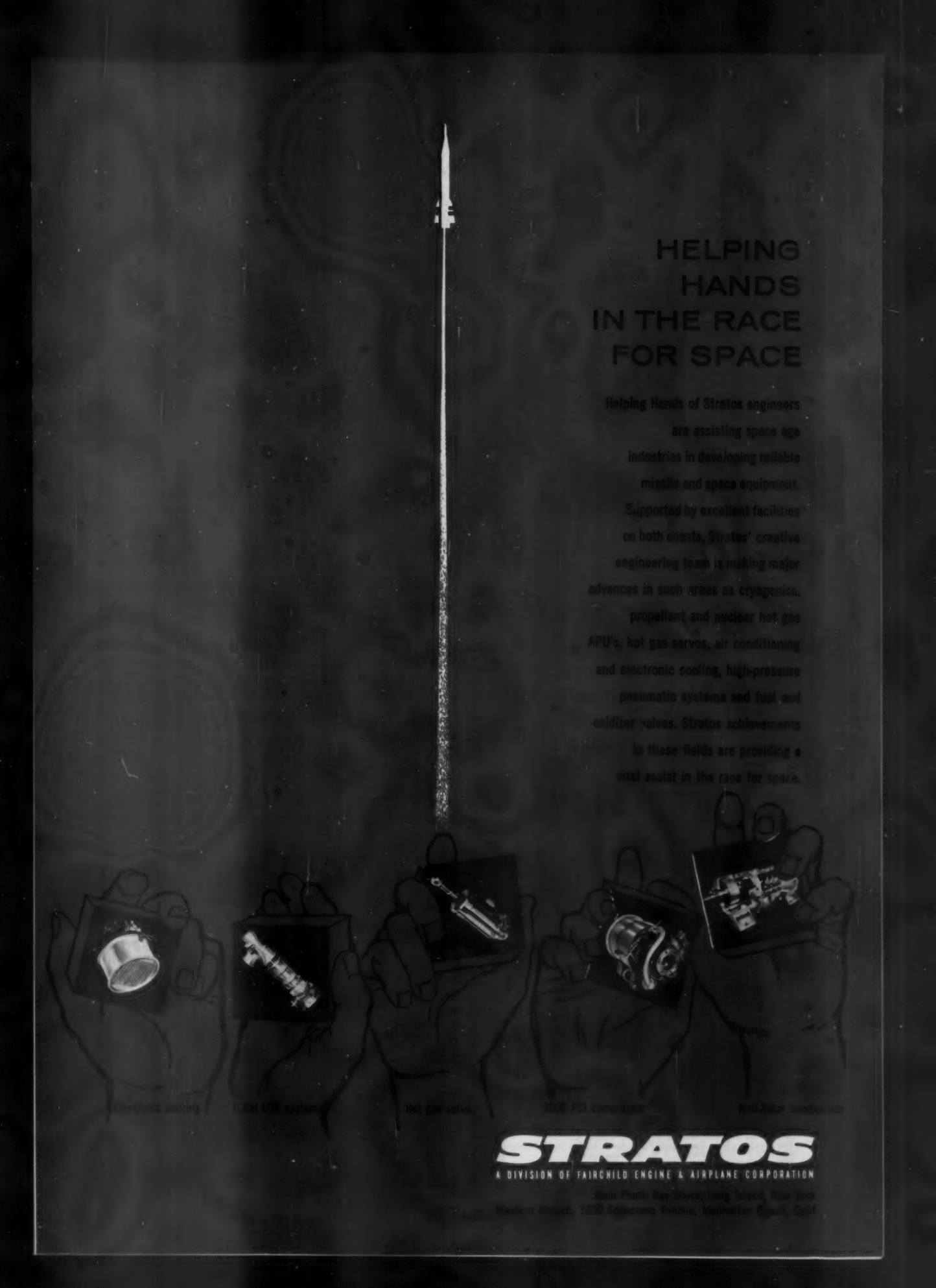
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ARMY

A PROFESSIONAL PUBLICATION DEVOTED TO THE ADVANCEMENT OF THE MILITARY ARTS AND SCIENCES AND REPRESENTING THE INTERESTS OF THE ENTIRE U. S. ARMY

YOU, YOUR WIDOW, YOUR CHILDREN. A Guest Editorial on the good works of the Army Relief Society. *Mrs. Elizabeth Bolles Hewitt* 22

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COVER by *Tom Hickson*

published by the
ASSOCIATION OF THE UNITED STATES ARMY

FOR THE ARMY, MSVD is currently developing the LITTLE-JOHN nuclear arming and fuzing system shown undergoing vibration test . . . part of MSVD reliability test program.

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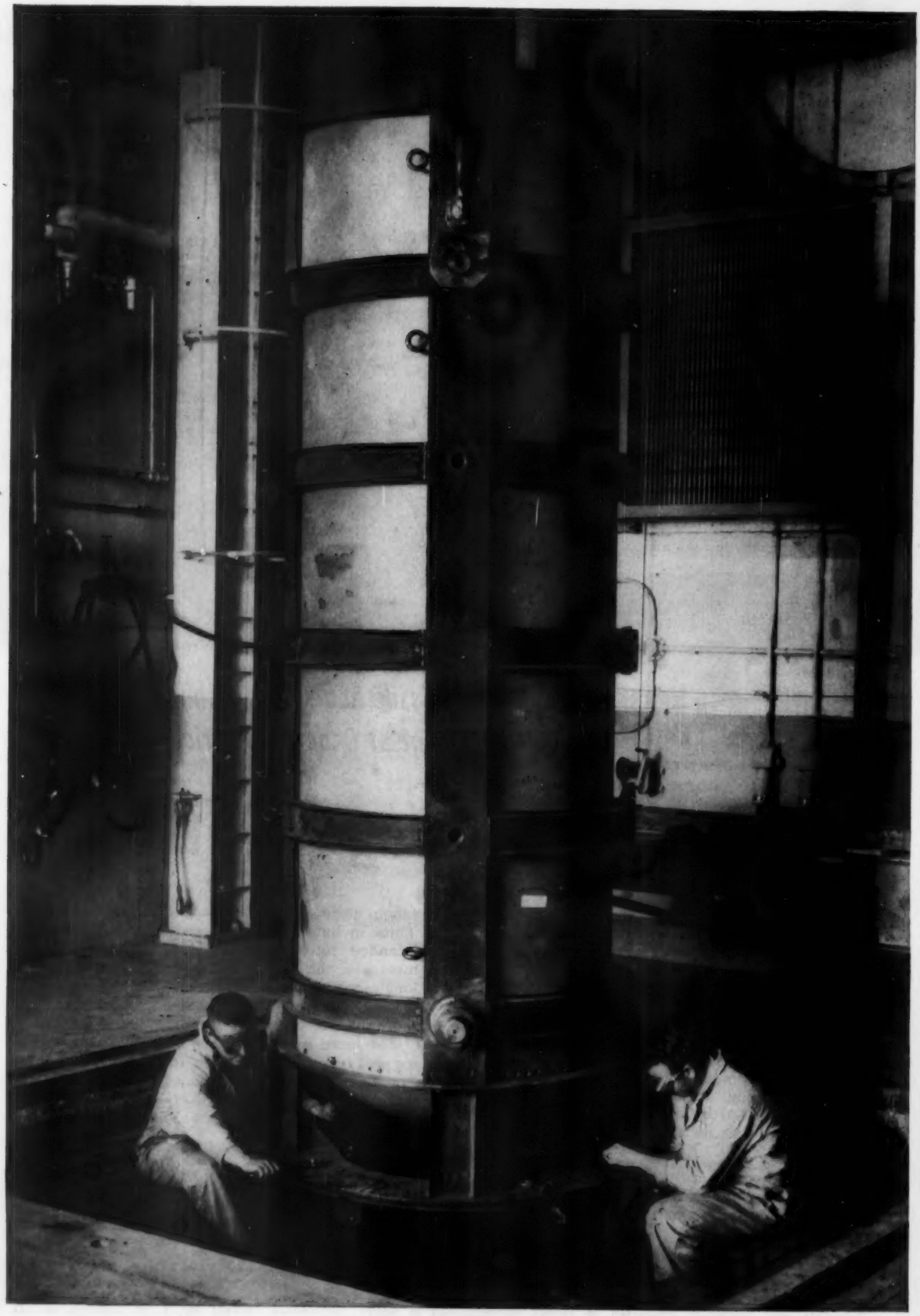

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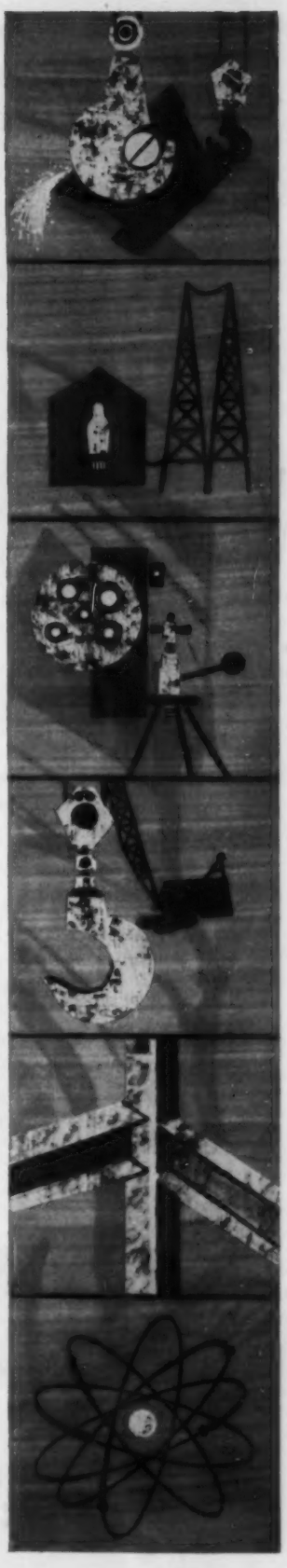

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ARMY letters

NO STRANGER HE

● As one who has read ARMY since before it changed its name, and as an alien, I had never supposed the day would come when I should venture to penetrate your pages—let alone to criticize one of your contributors. Nevertheless, Major Nutting's "Strangers in a Strange Land," in your February issue is more than I can accept.

I spent something more than a year in the United States during 1952-53, mostly at the Armor School, Fort Knox, Ky. I wish to go on record that I could not have been better treated at Knox or anywhere else. It is true that I was at first allotted a counselor-mentor, but we soon dropped that and I was very quickly accepted by the class—and so were the rest of the Allied students.

Hardly a Saturday or Sunday was not booked up by dates, and I had difficulty in completing my evening work because of the press of invitations to dinner. I was taken to the Kentucky Derby, whisked to Arizona for Christmas, and even had the privilege of sharing a family Thanksgiving Day. My greatest concern (because a gracious British Treasury had not allowed my wife to accompany me) was to find a way of repaying the endless hospitality and friendliness I received.

Furthermore the matter did not end there. I still receive ARMY through the generosity of a Fort Knox friend. I have met my fellow-students again all over the world—Asia, Africa, Europe—and we have travelled hundreds of miles to do so. Every Christmas I exchange nearly 150 cards.

No, Major Nutting has the most kindly intentions, but he is wrong. It is true that, on my course at any rate, we had a variety of so-called allies. A few, to put it bluntly, were pretty worthless. Some did no work, some spent too much of their time in cynical criticism of their hosts. But most of them were honest souls who had come to learn—and these were accepted in the same spirit by their American colleagues.

But I go farther than this. When I was in the States the Korean War was afoot, and servicemen were obliged always to wear uniform. The interest and friendliness I received from the American civilian man-in-the-street was a great experience. I do not doubt that some asked me to supper because they wanted to find out what made a Redcoat tick, but it was always done in the friendliest manner. I know that Frenchmen, Italians, Portuguese and many others had exactly the same warm treatment.

If Major Nutting's views are based on present-day experience, then times have changed indeed. Furthermore, I do not quite agree with your editorial note. *I* was never invited to tea by a Girl Scout Troop, supervised by an enlisted WAC. I can assure you that my friends at Fort Knox would on no account have allowed me to be subjected to such an experience. The hospitality I, and others like me, received, was entirely personal and certainly not organized. My only regret is that I was never asked to address the DAR.

I am glad, after seven years, to have this opportunity to thank my many American friends, but I am sorry that in so doing I must disagree fundamentally with Major Nutting.

LT. COL. P. A. L. VAUX, OBE
3d Royal Tank Regt.

PUNCHED AND PERFORATED

● It would be very helpful if you would have the pages of ARMY perforated and punched to fit a loose-leaf notebook. That way I and many other readers could take out the material we want to keep and file it away by subject.

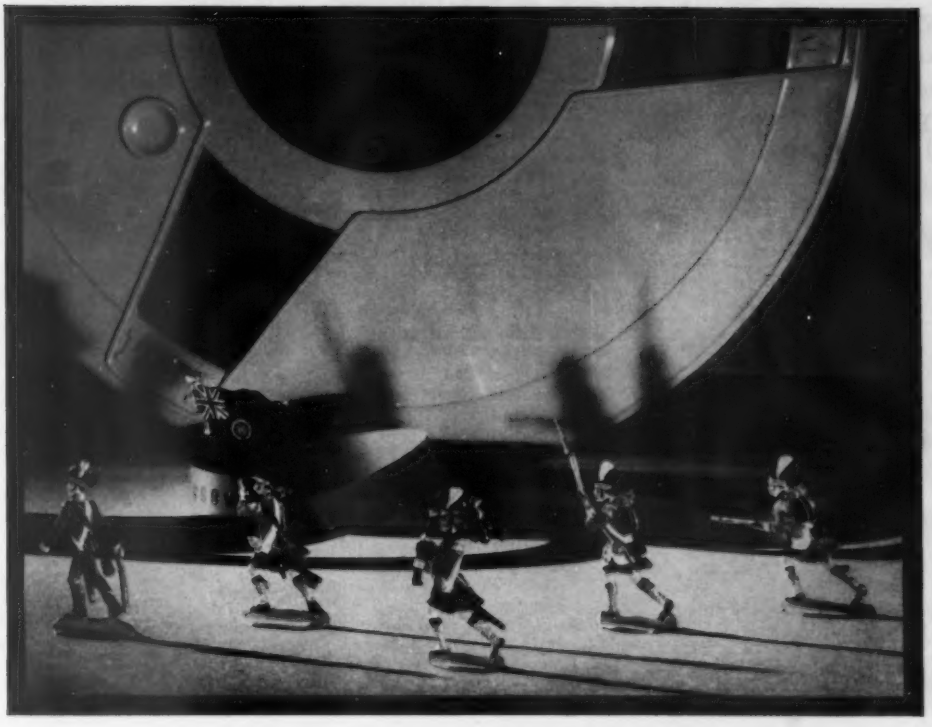
I'm just a soldier and don't want any credit for ideas, so please don't use my name.

SOLDIER
Fort Bliss, Tex.

An excellent suggestion. All readers willing to pay at least twice as much as they now do for ARMY *will please say so. If there are enough of you we'll take it up with our printer.* —THE EDITORS.

NO HOUSE OF CORRECTION

● Recently I read in a newspaper that a young man of the town had received a suspended sentence for indecent exposure on condition that he



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enlist in the armed forces by a certain date.

What an insult to every man who now wears or has ever had the honor of wearing the uniform of our country! Is our splendid body of soldiers, sailors and airmen a refuge for the undesirables of our civilian community? Soldiers of our country serve all over the Free World. Is this the type of person to represent the United States of America before the civilian population and military forces of our Allies? Can the mothers, sisters and wives of our young men or the fathers and brothers of our young women in the services tolerate the use of our Army, Navy and Air Force as a substitute for a corrective institution?

One wonders to what job and at what station this judge feels this unfortunate young man would best be assigned. Perhaps he does not care.

COL. GILBERT B. LAMB

Scarsdale, N. Y.

INDEX

● I continually find myself spending valuable time thumbing through stacks of back copies looking for an article I know appeared. Why don't you publish an annual index for researchers like me?

H. T. SORBEAN

Chevy Chase, Md.

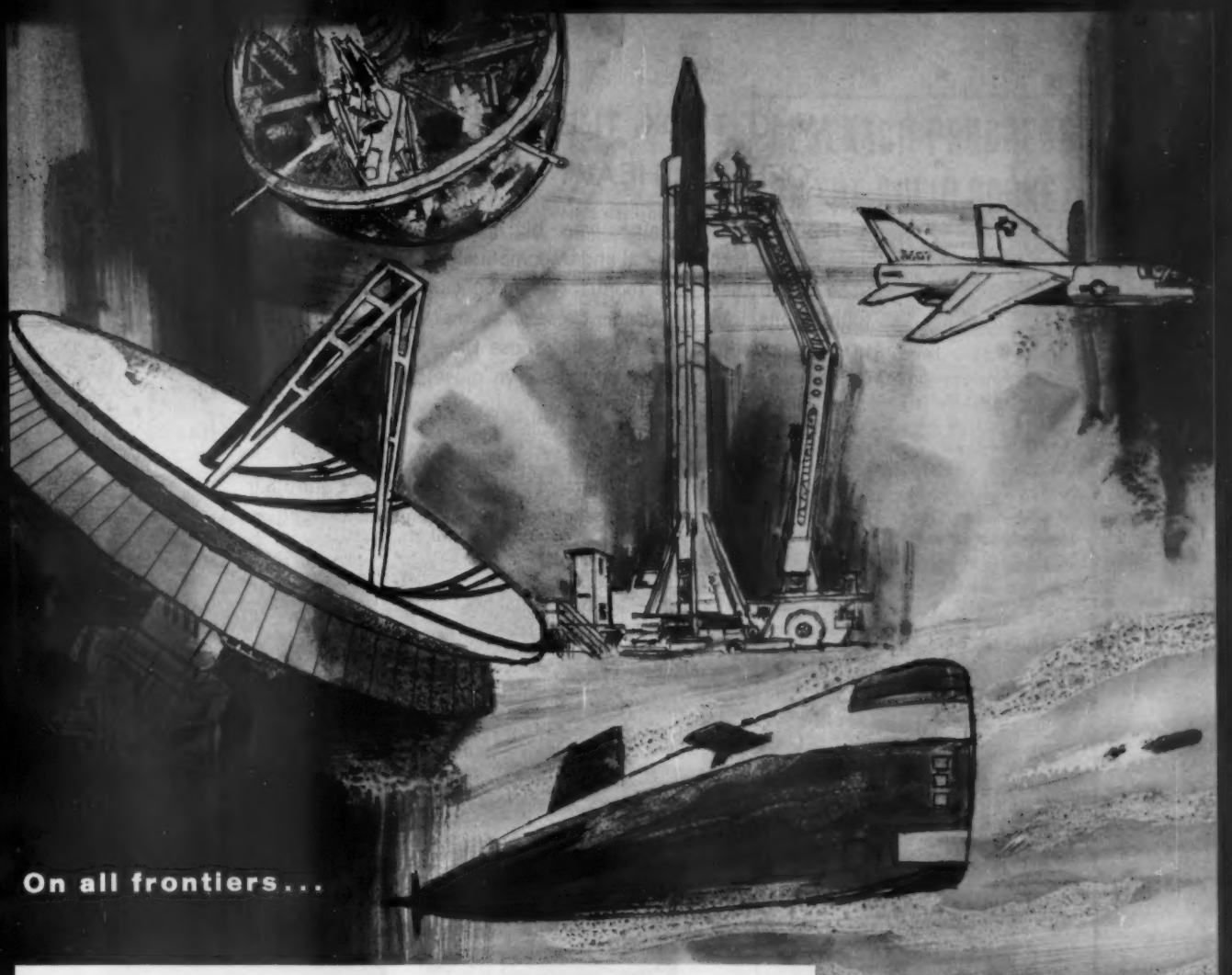
We do. And we usually announce its availability in the August or September issue.—THE EDITORS.

MR. K IS A MILITARY THREAT

● General Phillips in "Their 'New Look'—and Ours" in the March issue, says that "the blunt truth is that since the death of Stalin, the Soviet military establishment has shown itself far more flexible and more willing than ours to accept the effects of the revolution in armaments."

This blunt truth is somewhat blunted by the author's own assertion that the Soviets "have, indeed, accepted the idea of deterrence and massive retaliation." He adds: "But this is nothing new. It was implicit in the development of nuclear weapons and long-range bombers to meet the threat of the same type of U.S. forces."

This rather fuzzy writing would seem to indicate that "since the death of Stalin," the Soviets have been reacting to American initiative in the military field. This reaction is not a demonstration of "far more flexibility" and a brilliance in the face of "the revolution in armaments." It is a belated and sluggardly realization that the U.S. had the best appreciation of the meaning of the revolution in armaments all along—and that the



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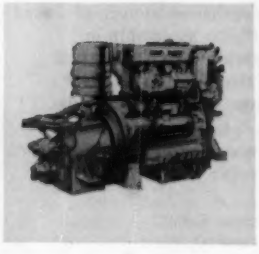

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Soviets were less flexible and less willing to accept the effects of the revolution in armaments.

General Phillips cites the ease with which the USSR made the switch in contrast with the grinding, "shocking . . . partisan infighting" which took place in the USA; that the Soviets made the change with "a maximum of efficiency and a minimum of internal division." This does not agree with the works of Galay, Garthoff, Dinerstein and others who have described the post-Stalin debates. Nor with his own statement that "Air Marshal Pavel Zhigarev was relieved of command of the air forces . . . [and] the admiral commanding the Soviet Navy who insisted on the surface ship-building program was also replaced." This smoothness of efficiency is probably not appreciated by Zhigarev and the admiral. And who now has anything to say about Zhukov?

The statement that "Khrushchev's reductions . . . would seem to indicate that he does not have the pathological fear of the West's bad intentions which animated Stalin" indicates that General Phillips believes what the Soviets say. He goes on to say that the reductions "may, and probably do, also indicate that Khrushchev does not have aggressive military intentions. Indeed, Khrushchev himself held that any country contemplating attack would not cut its forces, for it would need troops as well as firepower." I believe a careful reading of Khrushchev's "January 14 report" would show that General Phillips is mistaken.

If Khrushchev does not have Stalin's pathological fear of the West's bad intentions, why did he say, in the 14 January speech: "It is clear that the imperialists will try once again to rally the forces of the advocates of cold war. Peace-loving people must be vigilant and not relax in the struggle for the consolidation of peace."

We must depend upon some better source than Khrushchev, who, of course, does not consider the Soviet actions in Hungary, Korea, and Czechoslovakia as aggression. How can we square a reading of K's intentions with his statement in the 14 January speech that the Soviet Union "possesses such weapons and such firepower as have never been possessed by any army before"? And how can we square K's intentions with his statement that the Soviet armed forces will be as strong, or stronger, after the reduction?

The developments which General Phillips cites are directed toward modernizing the Soviet armed forces —not to the reorganization of the Soviet army, navy and rocket units into a purely defensive force. Rockets and submarines (weapons on which General Phillips and others indicate the Soviets are concentrating) are offensive weapons. Simple statements of defensive intentions do not convert an ICBM into a defensive weapon.

No, Khrushchev and the Communists have not "shelved aggressive intentions to expand by military force." They would like us to believe they have. But the real world (as General Biddle and the editors of ARMY rightly emphasize) is not made of cornstalks, and Khrushchev is no straw man. I think General Phillips's view of Khrushchev's intentions is too hopeful, and that Khrushchev is a military threat.

MAJ. WALTER DARNELL JACOBS
Arlington, Va.

DOUGHBOY CAVALRY LEADER

● Some time ago I read an ad in ARMY which pictured General Philip H. Sheridan of Civil War fame. As I recall, the theme was that Phil Sheridan really understood mobility and how to apply it to beat the enemy.

Someone in the advertising agency wrote fine copy, but had he done the proper research he would not have written "Cavalryman Phil Sheridan." A check would have revealed that all of Sheridan's service up to 25 May 1862 was in the 4th and 13th Infantry Regiments.

Like many other Regulars, the fiery Sheridan, dissatisfied with his sedentary job of quartermaster, wangled a state commission as colonel of a Michigan Volunteer regiment of cavalry. Though he became a general officer of U.S. Volunteers (the Civil War equivalent of AUS), technically Sheridan was a captain of Infantry until 20 September 1864 when he was made a brigadier general in the Regular Army.

I got the point of the ad, all right. Sheridan moved his soldiers to where they could fight. He didn't see cavalry as warriors who were meant to have at the enemy in mounted charges. He was infantry-minded and knew the power of infantry fire would have made such a tactic murderous. Sheridan used his "cavalry" really as mounted infantry. The horse was merely the means of carrying the soldier to the fight. Sheridan maintained, in effect, that "a cavalryman is nothing but an infantryman with four detachable legs."

MAJ. Z. J. NICHOLS
APO 173, New York, N. Y.

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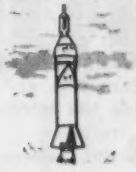

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ARMY authors

YOUR ARMY appears this month in a new uniform of slightly larger cut and is manufactured by a new printer. There are other minor changes, including new heads for several departments, but the basic mission of ARMY remains unchanged: to be "a professional publication devoted to the advancement of the military arts and sciences and representing the interests of the entire U.S. Army."

In this changing world, where merely to keep current is difficult, this is a large order indeed. As we see it, ARMY can best advance the interests of the U.S. Army by showing how those interests fit into national needs and international requirements.

Our lead article by Mr. Malcolm Mackintosh is a good example of ARMY's constant search for articles that will increase your knowledge of the world you live in and of the world you may have to fight for. Much that has been written in the past fifteen years about what a third world war would be like reads more like a combination of the weirdest parts of science fiction and horror tales than a knowledgeable and reasoned analysis of what we and our enemy may want to do and may be capable of doing. Mr. Mackintosh, who is presently engaged in preparing a book on the strategy and tactics of Soviet foreign policy, is well qualified to write on Soviet strategy. In January of this year he came to the United States at the invitation of the Air War College to lecture on "Probable Sino-Soviet Bloc Military Strategy"; the present article is drawn from that lecture. Mr. Mackintosh, who holds an M.A. from Glasgow University, is a consultant on Soviet military affairs to the Institute for Strategic Studies in London. He served in British Army infantry and airborne outfits as an enlisted man and officer from 1941 to 1946, and in 1944 made early contact wtih Soviet armies in the Balkans. He later served as a liaison officer with the Soviet forces and as a member of the Allied Control Commission. In 1956, during the visit of Khrushchev and Bulganin to London, Mr. Mackintosh was one of the Prime Minister's interpreters.

WE ARE happy to report that ARMY magazine has its first *exclusive* (as the big city press says) foreign correspondent in the person of Mr. Charles S. Stevenson, who is presently touring U.S. Army bases and MAAG units in the Far East for you. A peppery 65-year-old retired vice president of Hallmark Cards of Kansas City, Mr. Stevenson has for years been writing in his spare time for the *Kansas City Star* and the North American Newspaper Alliance. He first came to our attention when he wrote the story of the civilian aides to the Secretary of the Army which appeared in our January issue. He was well qualified for that one since he is the Secretary's Civilian Aide from Western Missouri. In preparing the present article on what's in store for the RIF's from the Soviet armed forces, Mr. Stevenson read voluminously and interviewed a number of sources including the Soviet Embassy in Washington.

CAPT. THOMAS C. WYATT went through World War II in the 34th Infantry Division as an infantry noncommissioned officer. After the war he attended college and then reentered the Army, winning his commission after a competitive tour with the 82d Airborne Division. He commanded a rifle company of the 23d Infantry in Korea and later was an Assistant G3 of the 2d Infantry Division. He is presently with the 77th Special Forces Group at Fort Bragg.

COL. JOHN D. BYRNE is an artilleryman who commanded a field artillery battalion of the 3d Infantry Division in Africa, Sicily, and Italy during the Second World War. In recent years he has had considerable joint duty and is presently with the MAAG in Spain.

MAJ. DAVID M. FIELD is a quartermaster who saw active service during the Second World War and in Korea. He is presently on duty at Headquarters, USCONARC, and is a graduate of the Associate Course, CGSC.

MAJ. DAVID M. PETERS and Capt. Robert J. Berens, who team together on the article that looks at the problem of compulsory ROTC by focusing on the University of Wisconsin campus, are presently studying journalism at that University under the Army's civil schooling program. Both are infantrymen. Major Peters, a graduate of USMA, served in Korea with the 187th Airborne Combat Team, and Captain Berens, who served as an enlisted man with the 34th Infantry Division in Africa and Italy during the Second World War, earned a regular commission through the ROTC at the State University of Iowa in 1949. He, too, served with the 187th in Korea.

MAJ. WILLIAM R. STROUD has been an artilleryman since his graduation from USMA in 1946. He has been at the University of Wisconsin since 1958 (unintentionally, this seems to be our "On Wisconsin" issue) studying journalism and conducting research at the Mass Communications Research Center.

Our four Cerebrationists this month include an Airman 2d Class of the USAF. As always they challenge your thinking, and sometimes your temper.

LT. JOHN S. CROSBY is Assistant S3, 2d Howitzer Battalion, 78th Artillery, stationed in Germany. He has had two assignments as a student at Fort Sill, plus assignments with a heavy artillery battery and a missile group.

LT. CHARLES D. SARKISS is presently Assault Gun Platoon leader in the 1st Airborne Battle Group stationed with the Seventh Army in Germany. An infantryman, he is a graduate of the USMA, Class of 1956.

A/2C ROBERT F. DORR, now serving at an air base in Korea, has been in the USAF for three years. He tells us that "I read AUSA's magazine regularly [but] at the same time I must confess membership in the Air Force Association."

AFTER EXPERIENCE with Army Training Tests while on duty with the Seventh Army in Germany, with Eighth Army in Korea, and with the 82d Airborne Division where he now commands Company C, 1st Airborne Battle Group, 503d Infantry, Capt. James M. Hanson concluded the problem is universal and here has his say on the subject.

A MILITARY communicator by profession, Col. Charles Gibbs of the Signal Corps has communicated several articles on the subject to readers of ARMY. His current assignment is Director of the Communications Department, U.S. Army Signal Research and Development Laboratory.

A GUEST EDITORIAL in ARMY is something of an innovation but we're happy that the innovators are the public-spirited ladies of the Army Relief Society. Mrs. Elizabeth Bolles Hewitt, the editorialist, is a member of the publicity committee of the National Headquarters of ARS, and is the wife of Brig. Gen. Robert Hewitt, who commands the 52d Artillery Brigade, ARADCOM, at Fort Wadsworth, N. Y.

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ARMY news notes

ROOSEVELT FUND EXCHANGE

The 14th Annual exchange of military lecturers from the U. S. and Great Britain, under the sponsorship of the Kermit Roosevelt Fund, will be completed 16 May when General George H. Decker, Vice Chief of Staff, addresses the Royal Military Academy at Shrivenham and the Royal Military Academy at Sandhurst. Lt. General Sir Michael West, KCB, DSO, of the First British Corps in Germany, came to the U. S. to lecture at West Point, the National War College, U. S. Army Command and General Staff College at Fort Leavenworth, and the Army War College at Carlisle Barracks, Pa. Gen. Decker's other lectures were scheduled at the British Staff College at Camberley and the Imperial Defence College in London. The Kermit Roosevelt Fund was established by the widow of the son of President Theodore Roosevelt, to promote better understanding and closer relationship between the military forces of the U. S. and Great Britain.

PACIFIC REINFORCED

The Army's Pacific Forces will be augmented in June with addition of a reinforced Airborne Battle Group and activation of a Mobile Logistical Command on Okinawa. The 2d Airborne Battle Group, 503d Infantry, of the 82d Airborne Division at Fort Bragg, backed by supporting units, has been designated to make the move to Okinawa in order to give the Commander in Chief, Pacific, capability for a more flexible response in the Western Pacific. A forward deployed Battle Group of the 82d Airborne will go to Okinawa with the remaining four Battle Groups remaining at headquarters in Hawaii. The Mobile Logistical Command will provide back-up support for Army combat units anywhere in the Pacific.

NAME CHANGE AT REDSTONE

That portion of Redstone Arsenal transferred to NASA is to be known as the George C. Marshall Space Flight Center, in memory of the late General of the Army. In directing the change by Presidential proclamation, President Eisenhower said: "It is fitting that these facilities bear the name of a distinguished and great American."

WARRANT OFFICERS NEEDED

Warrant officers in 14 different categories are critically short in numbers and the Army wants to find more eligible men. Particularly desirable are enlisted men of the National Guard and Army Reserve, and former commissioned officers in the Army. Qualified applicants will be offered immediate appointment at grades up to Chief Warrant Officer W-2. The Army emphasized that applicants need not hold existing MOS's in the various categories. The MOS categories needed are in missiles, communications, wheeled vehicles, armament and intelligence.

TEACHING COURSE OFFERED

The University of Omaha, which has been a leader in adult education, is offering former servicemen who may want to become teachers in elementary and secondary schools a special graduate program. The UO program would lead to a master's degree in education which would qualify the student for certification as a teacher. Currently four retired military men are working on their master's degree in teaching field subjects. The program will require about one year plus a summer session to complete unless an enrollee already has some education credits. The only difference between the new program and the standard education master's degree offered by UO is the award of a teaching certificate. Dean Frank Gorman, of the university's College of Education, said the new program will be ready no later than the fall term, and by the summer sessions, if possible.

IRRADIATED FOOD STUDY

A new, six-year, $5-million program to accelerate research on specific irradiated foods will be undertaken by the Army. The program was developed following the Army's decision last October to suspend construction of a $7.5 mil-

An achievement in defense electronics

NEW THERMOPLASTIC RECORDING DISPLAY ACHIEVES

Detection to Projection in Less than a Second

Large-screen display of radar signals can be recorded and projected in less than a second. This advanced technique in information display is an example of one application of the new thermoplastic recording system developed by General Electric.

The grainless, thermoplastic film eliminates processing delays and permits, with higher resolution, much greater enlargement than is practical with high-speed photographic film. Target delineation is also significantly improved by optical filtering used to increase the signal-to-noise ratio.

Now undergoing final development in General Electric's Electronics Laboratory, the "thermoplastic display" is expected to find maximum application in the high-speed radar systems of the future. 176-03

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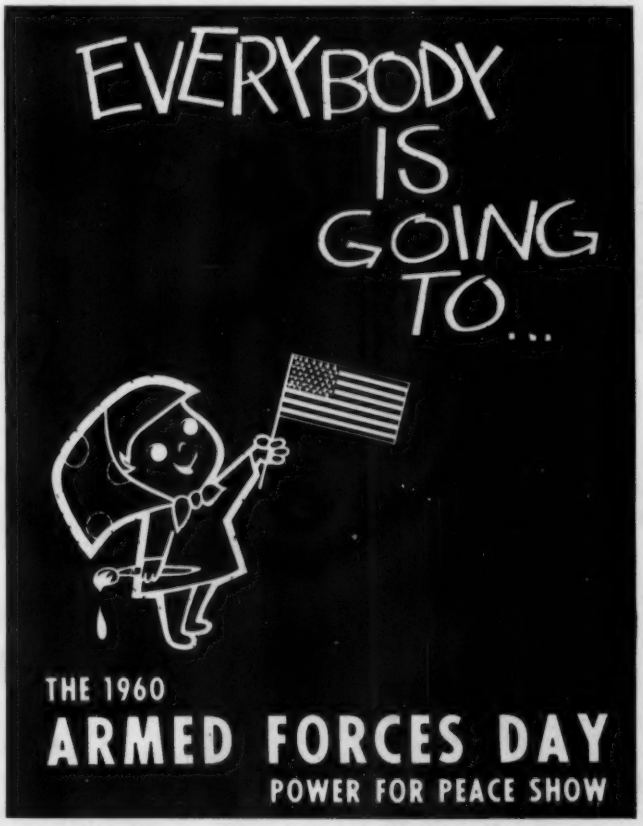
lion Ionizing Radiation Center in Stockton, Calif., pending further laboratory studies on the feasibility of radiation as a means of preserving foods. The new program, to be administered by the Army Quartermaster General, will concentrate primarily on foods of prime military importance—pork, beef, and chicken. The Army Surgeon General will continue to be responsible for conducting wholesomeness studies on irradiated foods in collaboration with the Food and Drug Administration.

GUARD EXPANDS NIKE ROLE

The Army National Guard will have increased responsibility for the operation of Nike Ajax defense missile sites, Secretary of the Army Wilber M. Brucker has announced. During the next 16 months, the National Guard will take over from the active Army full-time operation of 36 additional Nike Ajax batteries, in addition to six Nike Hercules batteries in Hawaii. The first batteries were taken over by the National Guard in the Los Angeles area in September 1958. Since then, the Guard has taken over—on an around-the-clock basis—operation of 40 Nike Ajax batteries in 10 major population centers. By June 30, 1961, it will participate in defense against air attack for 16 metropolitan areas in the north central and northeastern states, the west coast, and in Hawaii.

RETIREMENT PROBLEMS

With significant increase in retirements from the Armed Forces expected next year with the 20th anniversary of the World War II emergency, social scientists met in Washington at the end of April to discuss "Needs for Knowledge Regarding the Military Retirement Problem." Sponsor of the conference, which brings together research specialists in military and civilian organizations, is the Bureau of Social Science Research, Inc. The conference will study the problem both from an over-all, national perspective, and from the viewpoint of those directly involved—the retiree; his family; the institutions and communities the retiree will be entering, and the institution he will be leaving—the military establishment.



THE STATS ARE IN

RAVEN MOST VALUABLE PERFORMER

Leading in all departments in the light helicopter league is the Army H-23D Raven — the latest in a helicopter line noted for its seemingly endless growth potential. Here are highlights from an impressive array of statistics on the D Model Raven from Camp Wolters, Texas, U. S. Army Primary Helicopter School, and the world's largest helicopter operation.

Total flight hours training per month	7,000
Number of Aircraft	130
Availability, Including All Maintenance And Overhaul	85%
No. Autorotation (Practice Power Off) Landings per School Day	1,000
Overhaul Life (Major, all components)	1,000 Hrs.
Maintenance Hours, Ravens vs. all Army Average	less than 50%

One figure is missing from our collection... because it is inestimable. That's the value of the investment in dynamic components with designed-in future. They're ready now to drive entirely new craft of even greater economy and versatility.

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quotes

Aeronautical Research Lags

Several key witnesses, including the Navy's Vice Adm. John T. Hayward and the Army's Lt. Gen. Arthur G. Trudeau, have reminded Congress that the law is the National Aeronautics and Space Act and that the Aeronautical aspects of its provision have been badly neglected in the heavy emphasis on space research. There has been a tendency at the highest levels of both the Defense Department and the National Aeronautics and Space Administration to dismiss the need for any further aeronautical research effort and to concentrate on the budget-limited research funds available almost exclusively on space and missiles . . . We agree with Adm. Hayward and Gen. Trudeau that further pursuit of this policy neglecting continued aeronautical research in vital areas to devote the development dollars available almost exclusively to missiles and space is a technical fallacy and a dangerous course to steer. . . .

. . . there is a continuing need for aeronautical research for both military and civil requirements in such areas as supersonic VTOL vehicles, short takeoff and landing devices, helicopters, supersonic transports, new forms of propulsion and a variety of other fields where aerial vehicles will continue to play important roles.

ROBERT HOTZ
Aviation Week
21 March 1960

Equalization of Retired Pay

This traditional relationship of retired pay to active duty pay is probably the oldest long-term incentive in the military pay system. The first general retirement law in 1861 geared retired pay to active duty pay. There was one departure from this practice in 1922, but this tradition was restored in 1926 when the recomputation of retired pay was reinstated. Nor has the relationship been confined only to pay increases. A reduction of 8⅓% in officers' pay in 1932 and 15%, 10% and 5% in the pay of all personnel

ARMY editorials

AIRLIFT

EVEN before Exercise Big Slam/Puerto Pine (BS/PP) was over one message came across loud and clear: MATS' aircraft are either obsolescent or obsolete and woefully insufficient in numbers. Other messages were less distinct but no less important. Simultaneously repercussions began to be heard from the airlift hearings of a subcommittee of the House Armed Services Committee, headed by Rep. L. Mendel Rivers.

Among these muted messages was the somewhat startling intelligence that the basis for the often-repeated statement that there is "sufficient airlift to carry out approved JCS plans" was a highly hypothetical operation, severely limited in scope, and by most standards of what may be required is as unrealistic as a bow and arrow war.[1]

Another message was that MATS' inferiority extends to types of aircraft. Too few of them are capable of doing an efficient and economical job of lifting Army gear and guns and Army combat units ready to fight on disembarking.

During BS/PP MATS flew 20,500 troops and 11,000 tons of equipment from 14 U. S. bases to Puerto Rico. Among men who know combat requirements best these statistics fail to impress. That 11,000 tons of equipment, for example, represented only one-third of the troops' needs. And if there had been any shooting the requirements would have risen astronomically. Also most of the flights were relatively short: from such Eastern U. S. bases as McGuire, Pope and Sewart.

As a training exercise, BS/PP may have had some small virtues; as a test of the MATS capacity to move sufficient Army troops to support a limited war situation, the operation could be said to be of dubious value. Since preparations had been under way for six months, the exercise has little significance as to the capability of MATS to carry out an emergency airlift in a matter of hours.

It did show up MATS' sad plight. About 90 per cent of the 480 planes comprising the MATS fleet are obsolescent. It is evident that MATS could not, in an emergency, airlift two divisions anywhere in the world within four weeks, an over-all requirement that is "necessary, reasonable, and obtainable," in the opinion of the Army Chief of Staff General Lemnitzer.

Those who profess to see a possible solution to the dilemma in the Civil Reserve Aircraft Fleet (CRAF), comprising 116 cargo and 116 passenger planes from 22 commercial airlines,

[1] The Defense Department position as expressed by Deputy Defense Secretary James H. Douglas is that the "airlift capability now assigned to MATS is adequate to meet the hard-core requirements of general war, and the hypothetical hard-core requirements for limited war." General Lemnitzer has testified, however, that this conclusion is based on only one of many possible limited war situations—"a single so-called hypothetical limited war situation" that represents a very special case dealing with *flying troops overseas over existing MATS routes where Air Force bases already exist.* Even in this special situation the requirements exceed our airlift capabilities during certain periods, and are far less than the requirements for other highly possible emergencies. Further, this conclusion does not take into account the possibility of two or more emergencies occurring simultaneously.

are dreaming. CRAF is obsolescent too, and in any case, would not be available in the early and most critical days of an emergency. Because CRAF cannot be required to undertake military operations except in an emergency declared by the President or Congress, and since demands for air transportation increase rapidly in any emergency, it is unrealistic to depend on anything as theoretical as the CRAF plan. Senator Mike Monroney has called CRAF a "paper tiger" and the description fits.

At the conclusion of the first week's testimony before his subcommittee, Rep. Rivers said: "The airlift situation in which this country finds itself is positively frightening. If we could pick the time and places where we would fight, we might have airlift enough. But with our treaty commitments, we can't do that. To move into Southeast Asia and at the same time protect our flanks in the Pacific and in Europe and also be ready for a major war if the fighting should spread would be impossible."

By one reliable estimate, it will take a billion dollars in new equipment in the next five years to modernize MATS. Air Force Secretary Dudley C. Sharp told the Rivers subcommittee that there was $50 million in the President's FY 61 budget to get modernization under way. The amount is inadequate. Senator Monroney, a member of the Senate Appropriations Committee and chairman of the Commerce Aviation Subcommittee, said he would do "everything humanly possible to get a minimum $100 million this year." Mr. Sharp conceded that the MATS fleet is approaching obsolescence "with the sole exception of the C-133s." MATS presently has 29 C-133s, but these are not pressurized and cannot carry human beings in the cargo compartments. Of the 483 four-engine transport planes in MATS, 107 are DC-6s, 56 are Constellations, 291 are Globemasters, and 29 are C-133s. Engines and parts are no longer being made for the workhorse Globemasters, which are reaching eight years of age. The DC-6s are side-loaded and they, too, are getting along in years.

"Our planes are growing old and we don't have any new types except the C-130 and C-133 to take their places," Rep. Rivers observed during the hearings. "We can't wait until new types are developed, we've got to start buying now the planes that are now available." Since there is no American plane in production which meets the needs of MATS, Rep. Rivers' suggestion seems reasonable but has some bad bugs in it, as will be discussed later on. In any event it will be at least five years before specially designed aircraft could come off production lines, and we can't afford to wait. MATS' post-World War II preoccupation with civilian-type cargo planes and airlines [2] has left the U.S. in the unpromising position of a man attempting to win an Iowa plowing contest with a Kentucky Derby winner. When Percherons are needed you must breed Percherons, not race horses.

There is evidence that the Congress may vote funds for the modernization of MATS. But important as that step is, it

[2] The C-119, C-123 and C-130 types (all designed for relatively short ranges) were originally developed for Tactical Air Command's troops-carrier outfits. But many of the airlift missions of troop-carrier were transferred to MATS a few years ago by Secretary of Defense Wilson. This has had the effect of further downgrading interest in the lifting of Army combat forces, since to MATS this is a minor, low-priority part of its whole task.

during the period 1933 to 1935 applied to retired pay as well as active duty pay. Such reasons, among others, give status to the case for the recomputation of retired pay as recommended in H.R. 11318.

The Defense Department has studied carefully the comments which we have received from retired military personnel and others speaking in their behalf. We have concluded that we should request the Congress to revert to the time-honored relationship between retired and active duty pay. The Defense Department now recommends the passage of H.R. 11318. We have become increasingly aware of the fact that the Pay Bill of 1958, as enacted, is not sufficiently unique to justify a departure from what has been traditionally the policy of our Government.

SEC. OF DEF. THOMAS S. GATES
5 April 1960

Trend Toward Guerrilla Warfare

In order to minimize the effectiveness of an enemy's nuclear firepower, our units would be dispersed over a much larger area than was the case in World War II or the Korean war. One of the consequences of increased dispersion is that infiltration by both sides must be expected. Ground combat would be conducted in a battle *zone*, rather than along a "front line," as in the past. As a result, units would have to be more completely self-sustained, and their members would be called upon to exercise an even higher degree of individual self-reliance. In many respects, battle would take on a number of the characteristics of guerrilla warfare . . . All this has required us to develop new tactical doctrine, and to adopt new forms of tactical organization to carry out that doctrine. Guerrilla warfare is being conducted in several important areas of the world today.

GEN. LYMAN L. LEMNITZER
At the 89th Annual Meeting of the National Rifle Association,
23 March 1960

The ROTC in 1921

The ROTC has been developed to the point where it is a real link in the nation's chain of prepared-

ness. To increase its value and scope, the question for the future is how to popularize it with both students and faculty, how to emphasize its value as part of the college curriculum. The answer to these questions lies in the methods of instruction given to the students. This instruction can no longer be the deadly routine of close order drill and physical training. It must be instruction of a broad and comprehensive nature, presented always with enthusiasm and with an appeal to the interest of the students.

It must carry to the students the fundamentals of all phases of military training, teaching him in the classroom how to apply theoretical principles to actual conditions. It must be tangible, something that can be seen by the faculty and parents of the students, and at the same time, it must be instruction that is essential to prepare these youths for their place in the event of a national military crisis.

CAPT. LUCIUS D. CLAY
The Military Engineer
May-June 1921

Why USAREUR?

[United States Army, Europe] is in the front lines of the most important event going on in the world in 1960—the struggle between freedom and Communism. The Russian Army moved into the center of Europe after World War II and we are here to keep it from moving any further. Our nation is the bastion for the protection of all the great concepts devised by western men throughout the past 2,000 years, including Christianity, Roman law, French individualism, and British civil rights. We are here to prove that the American nation will fight, if necessary, to preserve these great ideas. We are here, also, to keep alive in the hearts of the oppressed the hope that one day all men will be able to live in freedom, with dignity, and under the just rule of law. There is no more important cause than this of ours in 1960. We take great pride in having it assigned to us.

GEN. CLYDE D. EDDLEMAN
Commanding General, USAREUR
7 April 1960

will not necessarily assure the Army of sufficient airlift *available on call* to move promptly even one division to a trouble spot anywhere in the world. The record of the past fifteen years shows that even aircraft designed for trooplift (the C-123 assault transport is an example) are used by the USAF for many other things and are only available to Army commanders through lengthy prior negotiation and for specific (usually severely limited) periods of time.

General Thomas D. White, present Chief of Staff of the Air Force, probably understands the Army's airlift requirements as well as any man (with the possible exception of the late General Hoyt Vandenberg) who has held that position. And yet he has difficulty according it much priority. Appearing before the House Armed Services Committee earlier this year, General White, when challenged on USAF airlift concepts, hotly denied that the Air Force did not want airlift: "I say we want it and cannot get it within the budget guidelines and within the priorities . . . the Air Force is the most competent service to handle the airlift."

Priorities can be changed and so can JCS requirements and, subsequently, budget allocations. But they will not be changed so long as the need for a hard core of airlift for the Army is downgraded, as General White does downgrade it in the rest of his testimony. This is old ground, much traveled, but until attitudes towards airlift change, there won't be much of it for the Army. This is true even if MATS is modernized. USAF requirements for cargo aircraft are constantly increasing and a modernized MATS with much increased capability will still find itself unable to guarantee the Army sufficient airlift promptly when and where needed.[3]

This is the way it looks to a great many people who have studied this problem over the years. AUSA's resolution on airlift states that "the U.S. Army must be provided with sufficient transport aircraft on top priority . . ." because it has learned that the necessary airlift will not be forthcoming unless there are firm advance commitments. Unless, in short, attitudes change and with them concepts and doctrines—and budgets.

[3] General Elwood R. Quesada, now Administrator of the Federal Aviation Agency, understands that MATS modernization must include planes specifically designed for military airlift. He is opposed, he told the Rivers subcommittee, to the proposal that MATS buy either cargo versions of the Boeing 707 or Douglas DC-8, or a modified KC-135 tanker aircraft. "Buying anything other than an uncompromised cargo aircraft runs counter to the objective of equipping MATS with the proper equipment for its wartime job. If we compromise the military fleet now, it will have been compromised for the next decade."
The only strategic airlift made within the past five years was BS/PP, he told the subcommittee. And in reply to a remark that BS/PP had required seven months of preparation, he observed, "they should have been able to do it within a week. And, if they can't arrange it within a week, why call it a strategic move?" If, he said, SAC can launch an attack within an hour, MATS ought to do as well.

KOREA ■ 25 JUNE 1950

To commemorate the tenth anniversary of the outbreak of the Korean conflict, ARMY will assess the nation's and the Army's Korean experience in its June issue. . . . Look for important articles by S. L. A. Marshall • Forrest Kleinman • Robert B. Rigg • Lloyd Norman • William R. Kintner • E. J. Kahn, Jr. • Martin Blumenson and others.

COMING IN YOUR JUNE ISSUE OF ARMY

OFF-THE-SHELF SPACE PROBES

NEWEST RYAN CAPABILITY

Instruments shot thousands of miles above the earth by multi-stage rockets hold the key to continued progress in our space research. These probes no longer need be prohibitive in cost.

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You, Your Widow, Your Children

Guest Editorial by
ELIZABETH BOLLES HEWITT

You, as a soldier or an ex-soldier, know where you can receive help and advice for yourself and your family in an emegency. You are familiar with command channels, you know where to find the American Red Cross Director, the Army Emergency Relief Director and the Veterans Administration Office. But, will your widow or your orphans know how to go about getting help?

Have you made a will? Have you discussed insurance with your wife? Do you know about the help the Army Relief Society extends to widows of Regular Army men and to their orphans?

Too many times the answer is *NO,* as in the case of a 75-year-old widow trying to get by on her meager pension and the little she could earn by sewing. She didn't know about the Army Relief Society and the society was unfortunately not aware of her need until she suffered a severe heart attack. Too many cases of deprivation and suffering occur because of unfamilarity with the Army's willingness to help.

The Army Relief Society, in the beginning, was a group of Army women and interested civilians dedicated to "providing relief in cases of emergency for widow and orphans of officers and enlisted men of the Regular Army and creating scholarships and supervising educational opportunities for such orphan children." A charter to this effect was drawn up and incorporated under the laws of the State of New York in 1900. The Army Relief Society, therefore, was the forerunner of the present Army Emergency Relief. For during World War II the War Department, realizing the need for relief beyond that afforded to widows and orphans under the existing Army Relief Society, created the Army Emergency Relief. It was then stipulated that the Army Relief Society would not conduct a separate fund-raising drive, but would receive 10 per cent of the AER funds in order to carry on this work with widows and orphans.

Generally, between the Army Emergency Relief, the Red Cross, and the Army Relief Society, *all* Army personnel and *all* types of emergencies are covered. Army Regulations have defined their responsibilities:

ARMY EMERGENCY RELIEF. "AER is primarily responsible for rendering financial assistance to members of the Army on active duty and their dependents, including immediate needs of dependents of all Army personnel dying while on active duty."

ARMY RELIEF SOCIETY. "Army Relief Society is responsible for rendering financial assistance to widows and orphans of Regular Army personnel."

AMERICAN RED CROSS. "American National Red Cross through its great resources and organization, with chapters located in nearly all civilian communities, renders many varied services to members of the Army and their families, including emergency financial assistance, under policies and procedures prescribed in AR 940-10 and SR 940-10-10."

Thus you can see the Army Relief Society is the *volunteer agency* specifically designed to meet the needs of your widow and children.

A typical case of the Army Relief Society's help is that of a young Army widow who returned to college and is finishing her preparation for teaching.

In another case twelve-year-old Johnny, an Army orphan, was left alone after his mother's death, and is now living with his married sister. A small allowance from ARS supplements his meager pension.

A loan was requested by an Army widow, the mother of two school-age children, to have her car repaired after an accident which occurred on icy roads while she was coming home from work. There is no interest on these loans and the repayment is made when convenient.

In the education field, one very promising girl was given an award to prepare herself for an accelerated course in college. She passed brilliantly and is combining her senior year in high school with her freshman year in college.

These are only examples of how the Army Relief Society seeks to help. The tragedy is that the ones who are in true need often don't realize they could be getting this assistance. It is our earnest hope that this article may reach some who never knew of the Army Relief Society and its work.

The Army Relief Society (ARS) cooperates with both American Red Cross and the Army Emergency Relief (AER). In towns where there is no ARS representative, and there are unfortunately many such towns, the Red Cross, acting as liaison for the ARS, collects information, makes recommendations and forwards the information to the main office in New York for action. Often times the AER will offer emergency help and later contact the ARS.

Today the Army Relief Society maintains its headquarters in a rent-free office furnished by the Army at 30 West 44th Street, New York 36, New York. The paid office staff consists of a full-time executive secretary, a part-time bookkeeper and a second part-time worker. All the other members of the widely spread organization are volunteers. For years there was neither an office nor regular office help. All was done by willing volunteers. But even as the Society grows older, as the field grows larger, and the work increases, it is felt that there is still need of expansion in order to reach those we could help but who know us not.

As I have said the Army Relief Society makes no separate drive for funds—10 per cent of the Army Emergency Relief is given to the Society—otherwise the money for the work comes from unsolicited gifts, memorials, legacies, memberships for a year or for life. So when you give to the Army Emergency Relief, you are also giving to the Army Relief Society. ARS assistance is not "charity" any more than AER assistance is charity. It is rather a sympathetic and friendly return on the investment of years of service by husband or father to the Army and his country.

SOVIET STRATEGY in WORLD WAR III

To Soviet strategists a short war is a myth and victory will go to the side that can preserve its armed forces from nuclear destruction and keep them able to fight beyond the point of national exhaustion

MALCOLM MACKINTOSH

BEFORE we can examine possible Soviet bloc strategies if war should come in the next three or four years, we must first ask whether the Soviet Government does indeed believe a third world war could break out. My answer is yes, they do. Evidence of this lies in Soviet ideology and in what Soviet leaders tell their military officers and the Russian people. They appear to instruct their officers that as the political situation develops increasingly in favor of communism, as markets for the capitalists disappear, as military alliances disintegrate, there might come a time when the capitalist world, led by the United States, could see only two alternatives: to surrender peacefully to communism, or to throw everything they have at the Soviet Union in a last desperate attempt to destroy the organizing center of the communist system. Naturally, they do not put it quite like that, but this is what they mean.

Another way in which, in the Soviet view, a third world war might come about is the deterioration of a local, conventional conflict into a war in which a major intervention by one of the nuclear powers became inevitable. Thirdly, Soviet military writers still repeat Stalin's prediction uttered at the 19th Party Congress in 1952 that wars between capitalist states are still possible, and that they too might lead to a situation in which the Soviet Union might be involved. Fourthly, we must consider the possibility of the Soviet Union being dragged into war by reason of her military alliance to Communist China.

KEY TO THE PREEMPTIVE BLOW

These possible causes of a third world war appear to assume that the Soviet Union would not

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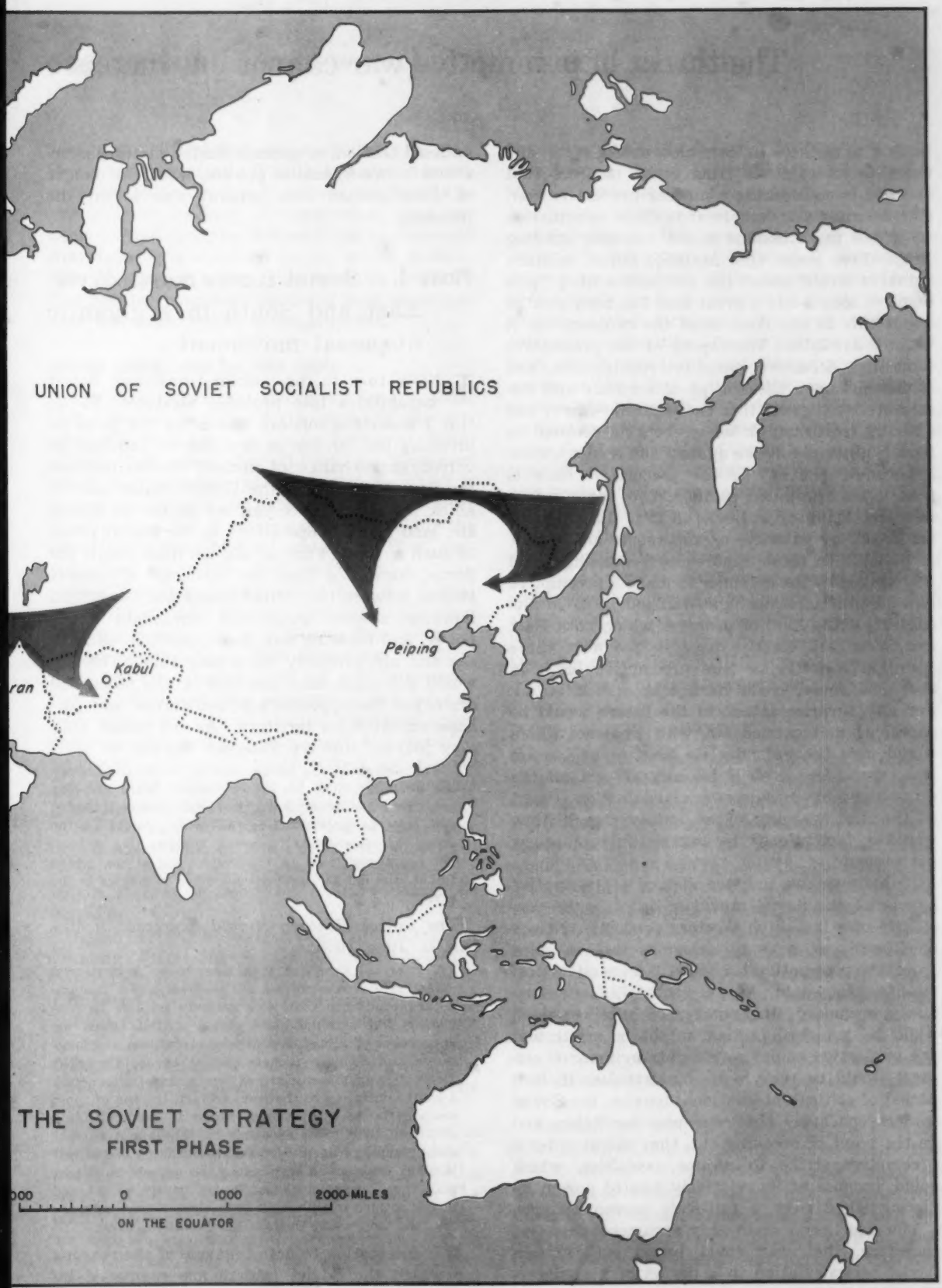
The first Soviet reaction to an exchange of nuclear blows would be the preservation of its armies for the day when they could be used against the surviving ground forces of the West


UNION OF SOVIET SOCIALIST REPUBLICS
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be first to strike a nuclear blow at the West, and there is no evidence from Soviet sources that Moscow is considering a nuclear preventive war. But we must ask ourselves: is there no situation in which the Russians might consider striking first? Five years ago, in 1955, Soviet military thinkers wrote about the conception of a "preemptive blow," and a great deal has been written about this in the West since the evidence for it became available. The theory of the preemptive blow is a defensive, casualty-reducing one, and it depends upon the receipt of accurate and immediate intelligence that the potential enemy has actually embarked on an irrevocable decision to launch a nuclear strike against the Soviet Union.

I believe the key to the preemptive blow is that it was proposed in 1955, two years before the first firing of a Soviet ICBM. In terms of an attack by subsonic or supersonic aircraft, it is possible to think that enough warning could be received by the defender to make a preemptive blow a practical strategic decision. But in the context of the kind of progress which both East and West will clearly make in the next three years in rocketry, a true preemptive blow, in the 1955 sense, could hardly be struck at all. For any surprise attack in the future would be conceived and carried out with weapons which would give the defender *no time to get in his blow first.* And even if his aircraft got off the ground and his missiles were launched on receipt of the first warning of an enemy attack, they would in fact already be engaged in retaliatory, not preemptive, action.

If, however, we link the idea of a pre-emptive blow with the Soviet mistaken belief in the possibility of a last-ditch Western preventive attack on Russia, we have to recognize that in some form, the preemptive blow is still a practical possibility. It would, in all probability, be hurriedly organized; the number of missiles which could be launched in time might be small, and the proportion of one-way flights by manned aircraft would be very high. Nevertheless if, in a period of critical international tension, the Soviet leaders concluded that war was inevitable, and on the point of breaking out, they might order a preemptive strike to reduce casualties, which could, because of its relatively limited power, be distinguished from a full-scale preventive war.

The conclusion from this argument must be, therefore, that war could break out through Soviet miscalculation in a period of high international tension, or perhaps during military operations between smaller powers, when the danger of deterioration into general war is on the increase.

Phase 1. Soviet forces march West, East and South in a gigantic dispersal movement

I NOW turn to the task of translating Soviet capabilities into probable strategy. To do this I assume a nuclear war is on the point of breaking out, or has in fact begun, and has involved an exchange of nuclear strikes between the Soviet Union and the United States and its allies. What evidence can we gather of Soviet air, land and sea operations in the initial phase of such a war? First of all, we must recall the Soviet conviction that the exchange of nuclear strikes between the United States and the USSR, however severe, would not annihilate either power, and that the war would continue on land, sea and air, probably for a long time. The end would not come until one side or the other had destroyed the opponent's armed forces, and perhaps occupied his territory. As the Soviet military journal *Military Thought* has put it:

> The defeat of the enemy will be achieved through the annihilation of his armed forces. Wars are won only when the enemy's will to resist is broken, and it can only be broken when the armed forces of the enemy are destroyed. Therefore, the directive of combat operations must be the destruction of the armed forces, and not the strategic bombing of targets in the rear.

The Soviet *Military Herald* expressed it like this in June 1958:

> The armed forces of both sides and the territorial extent of armed struggles are so great under contemporary conditions that it is scarcely possible to conclude a war within a short period of time. Even the appearance of atomic and hydrogen weapons and long-range and medium rockets cannot ensure the swift destruction of massive armed forces, and consequently a swift conclusion to the war. In fact, the use of these weapons by both sides leads rather to the prolonging of a war, than to its speeding up. The appearance of atomic and hydrogen weapons alters the nature of war in many ways, but a war cannot and will not be fought with these weapons alone. It can hardly be doubted that if a third world war is unleashed, it may embrace the land and water surface of the whole globe.

It is interesting to note that one of the reasons for which the Soviet leaders are compelled by

their own political doctrine to maintain this view is not military at all. It is that if you indoctrinate 200 million people to believe uncritically in the ultimate triumph of communism, then you cannot admit that this system could be destroyed overnight by a scientific device, which, incidentally, originated in capitalist scientific research. The loss to communist morale if such an admission was made would be catastrophic.

GROUND COMBAT AFTER THE FIRST STRIKE

You may object that the Soviet leaders adopt this viewpoint in public for propaganda purposes only, and that they no longer believe it themselves. But when the military establishment which they maintain and the training which it undergoes conform to the conception that a war must go on after a nuclear strike, then, for the immediate future at least, we in the West cannot afford not to take it at its face value.

It is, for example, significant that the formal adoption of this theory—1954-1955—coincided with the reorganization of the air-defense forces of the Soviet Union. The air-defense artillery, ground-to-air missiles, part of the interceptor fighter forces, and some elements of civil defense, have since 1955 formed a united command under one man—Marshal Biryuzov—with the status of an arm of service equal to the ground, air or naval forces. The organization of this headquarters gives the impression that it is intended to carry on an independent struggle to lessen the effects of a nuclear blow on the USSR without regard to the activities of the other three services, or to the success or failure of military operations elsewhere.

Again, even the briefest study of the type of training which the Soviet ground forces and tactical air forces undergo is indicative of swift, mobile land operations. Most exercises carried out by Soviet forces in East Germany now envisage an advance across a river by armor and truck-borne infantry in conditions of radiation following the explosion of a tactical atomic weapon.

It is my contention that this determination to train the Soviet armed forces to fight on after a nuclear strike leads to one conclusion: if the war has to be won by the destruction of the enemy's armed forces through a series of land, air and sea engagements, perhaps extending all over the land and water surfaces of the globe, then *it is absolutely essential to ensure that the Soviet armed forces escape destruction during a nuclear strike against the Soviet Union, regardless of the damage done to centers of industry and population.* This can be done on any large scale only by a gigantic dispersal operation—by removing the bulk of the Soviet armed forces as far away from the Soviet Union as is practicable. Soviet territory, of course, would be extremely unhealthy after a nuclear blow had been struck, and the Soviet leaders probably envisage as their first priority the use of the conventional superiority of their forces in Eastern Europe and Western Russia to force a passage away from the areas of radiation, even if this requires a full-scale invasion of Western Europe, and perhaps selected areas of the Middle East. An additional argument in favor of this course would be that if Soviet forces, with or without employing tactical atomic weapons, succeeded in making a major penetration into the NATO area, and crossed the Rhine into France, moving down also into Italy, the Western allies would perhaps be less ready to use the hydrogen bomb against the peoples of allied NATO powers, temporarily under Soviet military occupation.

OCCUPATION OF NATO BRIDGEHEAD

To sum up on this point, therefore, I believe that the outbreak of nuclear war would bring simultaneously a major Soviet attempt to occupy the NATO bridgehead in western and southern Europe, and also parts of the Middle East. This would accomplish two tasks at the same time: the destruction of NATO's main forces in the European bridgehead, and the safe dispersal of the main elements of the Soviet armed forces away from the area of concentrated nuclear radiation inside the Soviet Union. There, Marshal Biryuzov's air-defense organization would be struggling to produce some kind of order out of the destruction produced by a nuclear attack, and would be fully occupied by the need to keep essential services operating for civilian and military alike.

You can see that the practical application of this principle, logical though it is, faces the Soviet defense chiefs with a whole range of problems of logistics and of military security. Certainly it is significant that there has been a large-scale reorganization of the logistic services of the Soviet Army since 1957; for the first

Soviet planners are willing to accept huge losses in

time in the history of the USSR these services are commanded by a Marshal of the Soviet Union—Marshal Bagramyan—who ranks as a Deputy Minister of Defense. An officer of his wide combat experience and high rank would certainly be required to deal with problems of the build-up of reserve supplies, the creation of new and imaginative methods of bringing food, fuel, and ammunition to the front line in conditions of atomic radiation, and the prevention of contamination of water supplies.

General Kurochkin, head of one of the Soviet military academies, enlarged on this point in an article in *Military Thought:*

> In modern war, when enormous armies operating over huge distances depend so much on being supplied uninterruptedly with enormous amounts of all kinds of war materials, it is essential to work out in great detail all problems of the organization of strategic, operational and tactical supply areas. Problems of transport, the defense of supply lines against destruction at their bases or during rail transport to the front line becomes of prime importance in view of the employment of the new weapons.

It is of interest that the Soviet civil air fleet, which would be bound to play a vital part in such an operation in troop and supply transport, has recently acquired a new chief: Colonel General Loginov, one of the most energetic and experienced of Soviet air commanders.

The details of the military and air compaign to be fought by the invading Soviet Army are beyond my purpose here even if they could be accurately forecast. It is also impossible to give even a rough timetable of the number of days after a breakout from eastern Europe that it would take the major element of the Soviet forces to achieve their aim of the operational destruction of NATO land and air power in the European bridgehead. For one thing, who can foretell the effect on speed and maneuverability of the world's first explosions of tactical atomic weapons? But I think it can be said that Soviet planners (even if forces now stationed in East Germany and West Russia were to some extent reduced) consider that they could put the NATO forces in the bridgehead out of acticn, and occupy the Atlantic coast, despite enormous losses. They would also expect, once they had reached the main centers of population, to set up some kind of civil administration through the local Communist parties, and be able, after the campaign was over, to begin to support themselves off the land.

THE MIDDLE AND FAR EAST

Let us now look at the situation in the Middle and Far East. Here, the Soviet incentive to move rapidly would be the same: to disperse the operational land and air forces, using, if necessary, foreign territory. Troops now stationed in the Transcaucasus and the Turkestan Military Districts might well disperse into Persia and into Afghanistan without serious resistance; the campaign might be pressed into Iraq and Syria, with the aim of approaching Turkey, from whose territory IRBMs would have been directed at targets in the Soviet Union from the rear. Probably, however, the scope of the campaign here would be dictated more by the need to select a suitable area for "settling" a considerable Soviet force—say up to 30 divisions—in which the problems of logistical support would not be unduly complicated; in fact, the Soviet aim would be to create a viable military "camp" in the more fertile areas of the Middle East, rather than to add complete Middle Eastern states to the list of occupied territories. It is unlikely that at this stage Soviet forces would attempt to extend operations into Pakistan or India.

In the case of the Far East, it would not be surprising if some kind of agreement already exists between the Soviet and Chinese Communist governments for the smooth transfer of certain elements of the Soviet ground and air forces in the Transbaikal and Far Eastern Military Districts into Manchuria or Inner Mongolia in the event of nuclear destruction in the Soviet Union. This move would have to be particularly effective and rapid, since the Soviet Union would expect missiles to be launched from Okinawa or Japanese bases. Here again the purpose would be to save Soviet forces. But I should emphasize that we are considering at this point only a war which has broken out between East and West, and in which Communist China is at first not involved. In this case, we might expect to see a considerable body of Soviet troops temporarily accommodated on Chinese, and perhaps also, Outer Mongolian soil.

Thus at some stage, after the opening of hostilities, we may expect the Soviet armed forces to

be encamped in three major "centers of escape": the western Europe bridgehead now held by NATO; parts of the Middle East; and part of the Chinese side of the Sino-Soviet borderland. Completion of this operation would probably bring the first phase of the global war to an end and with it most of the predictable—relatively speaking—strategic moves in the struggle. Very many unknown factors would then enter into any Soviet calculation of phase two. For example: the actual degree of destruction wrought in the Soviet Union and in North America, Britain, and in other overseas bases of the United States; the accuracy or otherwise of the Soviet prediction that both sides would be able to continue the war after the first phase; and whether both sides, or only one would have any resources left for the continued use and production of atomic or nuclear weapons. And if neither side had this capability, what would be the relationship between the two sides in conventional forces and in trained manpower? It would be true, for example, to say that in occupying the NATO bridgehead, the best elements of the Soviet land and tactical air forces would probably have been engaged, and have suffered severe losses, while even if the existing NATO forces were totally destroyed, they would represent only a fraction of the potential land army of a fully mobilized Western alliance. And add to these uncertainties, the actual effects of the use of atomic and hydrogen weapons on the civilian population, water supplies, agricultural land and the disposal of waste, and the difficulties of a forecast mount alarmingly.

Phase 2. A drawn-out series of mobile moves and counter-moves of global dimensions

HOWEVER, if we may assume the existence of a Soviet military and political leadership determined and able to carry on the war against the West, and assume that the first phase has brought some 100 Soviet divisions into western Europe, the Middle East and North China, I believe that operations in this second phase would depend almost entirely on whether the Soviet leadership had reliable intelligence about the West's continuing nuclear capability. Until this question was answered, I would expect the preservation of the armed forces would still be the primary aim of the Soviet high command. The Soviets would avoid any strategy which involved concentration of large land and air forces for the assault of one objective, such as, for example, Great Britain. For if the Soviet Union's leadership was unsure of the Western stock of nuclear weapons after the first phase, it would be unlikely to risk a large number of divisions and aircraft on an attempt to cross the Channel, for such a concentration would present a perfect target for a further nuclear strike. So until the Soviet leadership was sure of Western atomic capabilites, I would expect the Soviet forces in Western Europe to carry out dispersal raids, perhaps as far as northern or even western Africa, in order to probe Western power and intentions, to frighten the neutral world, and to keep their forces mobile, thus lessening the risk of presenting a massive concentrated target. I would also expect the same to happen from the Soviet "camp" in the Middle East: that is to say, no large-scale invasion of the Indian subcontinent, but extensive long-range raids with close air support, probing, frightening, and keeping on the move all the time, within, of course, the limits allowed by fuel and supplies.

ALL LAND AND SEA AREAS INVOLVED

If the Soviet leaders eventually convinced themselves that the West's capacity to manufacture further nuclear weapons had been destroyed, one would expect them to fortify their position in western Europe militarily and politically and then use it as a base from which to carry out increasingly ambitious raids against West-held territory or strategic areas under "neutral" control.

It is possible to envisage such a phase lasting for many months, perhaps years, during which the Soviets would expect the West to carry out the same kind of long-range reconnaissance, facilitated by seapower, against which the Soviet Union would make maximum use of its submarine fleet. If, however, the Soviets came to believe that a certain strategic area had been written off by their opponents in the interests of an over-all Western plan, they might be tempted to occupy it permanently, organizing it along

communist lines to serve their war effort. Thus, one might find a Soviet war effort based on a new "fortress" in western Europe and northern Africa facing a Western war effort based on the Pacific and the Atlantic and parts of North America.

If, on the other hand, the Soviets guessed that the West had a greater nuclear capability after the first phase than they had expected, and that the West *would* use the hydrogen weapon against a Western Europe heavily occupied by Soviet forces, then dispersal moves might be more rapid and more widespread. We might find them attempting to spread all over western Europe and northwest Africa, to infiltrate, not so much in order to occupy territory, but to keep the main body of their forces intact until a final clarification of Western strength and Western morale and Western military capabilities had been achieved. Again, assuming that both sides are capable of continuing war after the second phase, and that both sides still possess a nuclear capability, I would expect to find the Soviet Union adopting a defensive reconnaissance position, waiting for a Western counteroffensive against Soviet-held Europe and northern Africa or the Middle East to show signs of materializing. As a Western concentration began to develop, one would expect a Soviet counterconcentration to appear, to be rapidly dispersed over a wide area at the first sign of the reappearance of a nuclear weapon, or the Western concentration turned out to be a decoy.

This, as I see it, could well be the pattern for years of warfare in the second phase: a series of mobile operations, in which both sides use the whole land and sea areas of the globe, carrying their supplies and fuel with them, to explore and probe, damaging the enemy wherever possible, while avoiding concentrations which might present a target for nuclear bombardment. That the Soviet high command is thinking in terms of this kind of rapidly executed combined operation can be guessed from this quotation from *Military Thought:*

> The characteristics of the type of offensive strategy [for us to study] include: frontal attacks and counter-attacks in the most complicated conditions, both day and night; independent air and sea operations, with airborne troops, and landings from the sea; using troops in coastal areas in conditions of great speed, and rapidly changing circumstances; mounting combined operations within a short time.

Furthermore, I understand the Soviet forecast that the war "would be fought over the whole land and water surface of the globe" to mean a Soviet readiness to carry the raiding war not only into Africa, India and Pakistan, but also to attempt diversionary raids against bases in Greenland, northern Canada, or other points in

the New World, and that the Soviet high command would also expect to face Western raids along the periphery and into the heart of "their" continent.

Phase 3. War ends, not with a bang, but with one side emerging as the world's dominant power

WE now have to face the most difficult forecast of all: how such a war would be brought to a successful conclusion. Frankly, on the evidence available from Soviet sources, I do not believe that this can be done. We have to imagine the military, air and naval power of the Soviet bloc spread and dispersed in small groups all over the Eurasian continent, down into Africa, perhaps the Indian subcontinent, or into the subpolar regions. We have to imagine some element of Soviet submarine power at work in the Atlantic and the Pacific Oceans. We have to imagine the Soviet leadership hard at work organizing the peoples and resources of the territories occupied by them along communist lines for their war effort, and to help in the reconstruction of the homeland. And I think that all one can say is that Soviet strategists would expect the long-drawn-out dispersed operations of the second phase to crystallize into some form of decisive degree of superiority in favor of one side or the other which would ultimately bring the war to a close, assuming that the war would be fought to a finish, and not ended by some combination of factors unknown to us or the Soviets at the present time. Ideally, of course, both sides would hope to be in undisputed control of as much of the earth's surface as possible at the end of the second phase, enough to deny all essential resources to the enemy, who would thus become weaker and weaker, until all warlike operations ceased.

While I must admit that there is no reliable evidence from Soviet sources to help us to draw any realistic conclusions as to how the Soviet defense chiefs envisage the victory which they have forecast for themselves, I have attempted here to translate Soviet doctrine on war into some form of practical strategy. So far, we have been concerned with a war in which the Soviet Union and the West were engaged from the very beginning. But there is another possibility, and one of which, I believe, the Soviets are very frightened: the outbreak of a war between Communist China and the United States through gross arrogance and provocation on the part of Peking. One could imagine a situation in which hostilities broke out, and Peking called on the Russians to honor their military alliance by initiating a nuclear strike against U. S. bases in the Pacific, and perhaps against the West Coast. In such a case, Moscow would have to decide between a preventive war, involving the destruction in retaliation of much of Soviet territory, and probably the diversionary campaigns I have attempted to describe—all to help Communist China—or refusing to honor her treaty obligations. A few years ago, in the autumn of 1958, we almost had a rehearsal of this situation, when the Chinese Communists began the bombardment of the offshore islands. Khrushchev's reaction was most revealing: for this was the only occasion in his term of office in which he sent to the United States Government a diplomatic note so abusive and so belligerent that the President refused to accept it. I believe that Khrushchev was desperately anxious to prevent a Sino-American war, and avoid this dilemma, and, while restraining Peking, was prepared to go to almost any lengths of threats and bluster to convince the West that he meant to stand by Communist China at all costs.

In fact, if this situation did develop, it is my view that the Russians would compromise. They would not launch a nuclear war to cover China's aggression, but they would seek some formula to fulfill their treaty obligations to Peking. They might "lend" part of the Soviet Pacific fleet—especially submarines—to the Chinese, or allow the Chinese to use Soviet bases, thus, the Soviets might hope, forcing the same dilemma on the United States as to whether to carry the war to the Soviet Union or restrict operations to China. They might even apply the dispersal technique in reverse, especially if the United States was using atomic or nuclear weapons against China, and

quarter a proportion of Communist China's best land and air forces on Soviet territory—in Transbaikal—in order to save them for a later campaign. Generally speaking, even if the Chinese Communists drifted into war with the United States, the Chinese would find that it would be difficult for them to carry on a war without Soviet approval. Moreover, it is very likely that the nature of Soviet military influence in China is strong enough to bring the war to a close, regardless of Chinese wishes, if the Russians so decided. In other words, Russia may not be able to prevent the Chinese *politically* from blundering into a war, but they probably could dictate its course and duration, stopping it if necessary in the Soviet interest.

Limited War. Out of fashion in Moscow, it may find more favor in Red China's Peking

THIS brings me to the final subject: that of limited warfare. Limited warfare is, I believe out of fashion in Moscow, though perhaps not so in Peking. It was tried once, on Moscow's orders in Korea, and in spite of all propaganda to the contrary, it did not succeed *from Moscow's point of view,* simply because it failed to bring South Korea into the communist camp. The Korean war also showed the Russians how unreliable are satellite armies, and this was confirmed in Hungary in 1956, when the Hungarian Communist Army sided with the revolutionaries. Experience has taught the Soviets that limited wars by proxy carry little chance of ultimate success, the armies are politically untrustworthy, and cannot be given high priority weapons. Moreover, if defeated, these armies may disintegrate and may even lose territory to the West now held by the communists. Furthermore, limited wars conducted by the Soviet Army would almost certainly develop into global wars, and this is admitted by the Russians themselves.

POSSIBILITY OF LIMITED WAR

And if we look at the map of the frontiers of the Soviet Union, we see how restricted are the possibilities of Soviet-conducted limited wars. In the West, any attack on Norway, Germany, Greece or Turkey would immediately involve NATO; an attack on Persia would involve CENTO, and Britain, a nuclear power; an attack on Afghanistan alone would be senseless except to cut a road through to Pakistan, once again a member of CENTO; and the Soviet Far East frontier runs exclusively with China. There is, therefore, little scope for a Soviet limited war. But this does not apply to Soviet incitement of peoples in the Arab world, Persia, India, Pakistan, and Africa to rise in rebellion, and, as in Malaya, to wage a civil struggle under the leadership of the Communist Party. This can be carried on without danger to the Soviet Union for years, and can cause great harm to the Western cause. However, while part of communist strategy and tactics all over the world, this is not strictly Soviet war strategy.

Meanwhile, there remains the problem of Communist China in the sphere of limited warfare. There seems little doubt that Peking is more inclined to favor this strategy than Moscow. China, compared with Russia, gained from the Korean war, and certainly China's experience of assisting the Vietnamese communists to power might incline her to approve of limited war on other occasions, such as Laos or Cambodia, or the whole of former Indochina. China openly advocates limited war in the Formosa Strait, and might be said to have used the technique against India in 1959. But in the period now under review it seems likely that militarily Communist China will find herself still held firmly in a Soviet grip which, while it does not seem always to operate *before* Peking makes a belligerent move, would probably prevent the Chinese from waging even a limited war against the will of the Soviet Union. Perhaps this grip was forged under Stalin, when China was much weaker; no doubt it is one which Khrushchev will not readily let go.

IN conclusion, and by way of a general summing up, it is my view, first that the Soviet Union finding its freedom of action much restricted, will not undertake any move deliberately calculated to bring on a global nuclear challenge to United States power. However, the Soviet leaders appear to be convinced that capitalist states, at some stage of what Moscow regards as their inevitable decline, may prefer all-out war to passive surrender to communism; and indeed, such a war might come about by grievous miscalculation on the Soviets' part, based on dogmatic misconceptions. If war comes, the Soviets believe that it will be long, bitter, and will spread all over the globe. Since victory will come, not through nuclear destruction, but through the destruction of the enemy's armed forces in battle, it is essential to preserve these forces during the nuclear strike phase, and this may involve the rapid occupation of enemy or neutral territory. This conception leads us to predict a possible Soviet land, sea and air campaign designed to preserve the armed forces, keeping them for some undetermined final struggle. And it is with this conception in mind, what one might call the "logic of military dispersal" on the part of the Soviets, that I believe that the West ought to look to its defenses and its counterpreparations.

Mr. K's RIFs Face Life Outside

The Kremlin says that a quarter of a million officers and a million men will be released from the Soviet armed forces in the next two years. One problem is to find jobs for officers who lack any kind of a civilian skill. But there is also a Soviet GI bill of rights—of a sort.

CHARLES S. STEVENSON

ILLUSTRATED BY GIL WALKER

WHEN—and if—Khrushchev releases the 1,200,000 troops he has publicly stated he will discharge by the end of 1961, his action will put about 250,000 officers and some 950,000 enlisted men on the Soviet Union's retired list over a two-year period. Such a move will be one of history's largest single peacetime troop reductions.

In the U. S. Army we call this a RIF (Reduction in Force)—retirement before completion of obligated service—as distinct from discharge by virtue of demobilization after a war, by expiration of term of service or by retirement.

What will happen to all these Soviet officers and men. Will they all find jobs? Where and how will they live? Will they be allowed to "simply fade away?"

Except for one small matter, Mr. K and associates say, the Kremlin has the situation well in hand.

It may be difficult to believe, but Mr. Khrushchev has practically admitted that the "one small matter" is the problem created by the release, on such short notice, of so many officers who possess so few civilian skills, and for whom there are not enough jobs to which to return. Exceptions, of course, are those with engineering, electronic, chemical and similar technical and scientific backgrounds—not a large number, however, relatively speaking.

"The demobilization of more than 250,000 officers will entail a certain amount of difficulty," Defense Minister Rodion Y. Malinovsky is reported as having recently told an assemblage of officers of the Moscow garrison. "The intregration of enlisted men into civilian life should cause no hardship."

Khrushchev and Malinovsky are not exactly saying that their soon-to-be-released officers cannot paint a patent medicine sign on the side of a barn, or fix a dripping faucet.

It's two other things!

There's the matter of prestige (the fellows have been living it up high on the Soviet scale) and, to lay it straight on the line most of their MOSs are strictly military.

The law has required that the councils of ministers of the union and autonomous republics,

soviets and leaders of enterprises, institutions and organizations are all obligated to provide work 30 days after discharge, to officers put in the reserve with due regard for their specialty and work experience. Recent press dispatches indicate that the recent decree made this applicable, also, to the million enlisted men currently scheduled for release. All but a few of the officers in the Soviet forces, however, have been in military service since youth and have never really worked in a civilian pursuit. Thus, few have jobs to which to return.

SPECIAL PRIVILEGES WERE ALWAYS THERE

Mr. K is at no loss for words to explain to the Soviet officers (not the enlisted men) and to the world at large that they will be the beneficiaries of "special privileges"—a sort of tongue-in-cheek, but existent, attitude in the workers' paradise. A look at these announced "special privileges" suggests that the Premier has spent some time on the Yankee bench where he came into contact with the famed Stengel double-talk. Most of the "special privileges" of which he speaks have always been a right of retired officers. However, the recent pronouncements, although embellished by the double-talk, do serve as an urge to look at the retirement policies of the Soviet armed forces, on a sort of before-and-after basis.

- To give them time to acquire new skills, officers with no civilian professions will draw full military pay for a year. (In the past, this was not available to officers who received retirement pay. An officer forced out before being entitled to retirement pay, however—there were few such—could draw 75 per cent of one month's pay for the position for which he was preparing so long as he kept preparing himself.)
- Demobilized officers are to be guaranteed employment within one month of discharge. (Since most American retired officers would probably gladly settle for a job a month after discharge, the expressed concern of Marshal Malinovsky that his "officer mobilization will entail a certain amount of difficulty" carries a flavor of typical Soviet propaganda. Besides, as indicated above, this has always been available to retired officers.)
- Top spots on the waiting lists for apartments are to go to retired officers with guarantees that housing will be available within three months after discharge, a luxury for which some civilians stand in line for five years or so. (A Soviet decree of 1953 guaranteed living quarters to generals, admirals and senior officers only. Khrushchev has apparently now included officers of lower ranks.)
- Loans for homes are available to retired officers, the limit being determined by rank. Generals and admirals can borrow 25,000 rubles. Senior officers can sign notes for

15,000 rubles. Those of lesser ranks have to be satisfied with a top of 10,000. The rate of interest is 2 percent, most loans running for ten years. (Actually, all Soviet citizens can get home building loans, but larger sums and better terms are allowed servicemen—and have been for some time before Khrushchev's current remarks.)

- Extra bonuses are available for many officers who care to mush their way to the Soviet Far East or to the steppes of northern Siberia, and help build up these areas. To them, also, the Marshal has promised a bigger share of consumer goods, extra fine food and private living quarters within 90 days. (This last favor was promised early this year with no mention of anyone having to go to Siberia. In addition to this, it is a matter of record in Soviet orders since 1945 that anyone willing to settle "where new and fallow lands are under cultivation" will be allowed transportation, certain tax exemptions, credits toward housing, help in purchasing livestock, and other benefits—all this to encourage settlement in the far northern areas. So far as the retired serviceman is concerned, it seems that about the only advantage he has over civilians is that he can borrow more money for building a home.)

CREDITS TOWARD RETIREMENT

When it comes to "standard" retirement pensions, all Soviet officers receive lifetime retirement benefits based on 50 per cent of their active-duty pay, plus 3 per cent a year for each year of service over 25, the normal length of time required for retirement. By virtue of a "double time" credit in figuring retirement eligibility, however, the equivalent of 25 years of service can be attained in less time than that. Thus, men who have been making parachute jumps, testing aircraft, taking diving assignments or doing minesweeping, can get out of service earlier than they originally planned—and with good retirement pay—and at a younger age than they anticipated.

Here is a comparison of the percentage of base pay, after the stated years of service, available to retired officers of both the United States and the Soviet Union.

	% after 25 years	% after 30 years	% after 35 years
U. S.	62.5	75	75
USSR	50	65	80

While this suggests that it is possible for certain Soviet officers to get 80 per cent of their base pay upon retirement, only a few, if any, to be retired by 1961 are expected to even approach this figure. There have been no indications as to how those who have not completed the required minimum of 20 years will be treated, but the entire Soviet retirement policy appears a rather generous one, and it is most likely that the officers will be fairly treated.

Few Soviet officers retire voluntarily, for several reasons. They like most of the treatment they get in one of the state's favored occupations: good pay, graceful living and high prestige, usually with the aged and injured being offered administrative, teaching, and similar light duties.

The total number retiring annually is not large, and there appears little problem in absorbing them into civilian life. As a matter of fact, Marshal Malinovsky has said that more than 70,000 officers had found jobs in the Moscow area during the past six years, nearly 30,000 as "responsible executives." Since under Soviet policy everyone works, unless aged or incapacitated, the Marshal's statistics suggest for those years a normal annual attrition of about 12,000 officers out of a total strength of 3,623,000. The officer attrition figure in the U.S. armed forces during fiscal 1959 was about 6,000 out of a total strength of 2,508,000. During the next few years, however, because of the high influx of officers at the beginning of World War II who are now reaching the 20-year

retirement area, the U. S. attrition figure will be considerably higher.

All Soviet officers who retire when less than 50 years of age, some of whom are certain to be in the group scheduled for discharge, are required to take refresher courses in anticipation of a return to duty. As such, they become part of 25 million Soviet male reserves, none of whom are names on file cards, who take periodic military drill, the frequency and intensity depending on age and military specialty.

WHAT ABOUT PRIVATE IVAN IVANOVITCH?

The Soviet enlisted man fares differently. Entering the service at the age of 19, by virtue of compulsory military service and through a complex method of selection, those demonstrating certain attributes are assigned to pursuits which would make them eventually more valuable to the state in such fields as industry, agriculture, transportation, science, education—and as officers of the armed forces.

This process, however, relegates those not so chosen to an enlisted category which undergoes a training routine which includes not only military skills, but also those which prepare them, upon discharge, for a quick transition to general civilian employment. As a result, any Russian youth who does not have a trade or skill when he enters the Red service, will have one when he gets out—and with it, of course, a quick job. All he need do is apply to his trade union, his community's city executive council, or the Party's local head—and he is at work.

From a realistic viewpoint, the Soviets, for the past few years, seem to have been taking in about a million enlisted men annually and discharging about the same number. Since the new reduction order provides for the release of an additional half million during each of the next two years, the Soviet's national economy will have to provide annually only that many more new jobs for enlisted men.

Soviet authorities are on record as saying that expansion of the USSR's industry and agricultural interests is such that the country's problem is to find enough men to fill all the jobs. If true, a welder, a die maker, or a carpenter should find suitable work at once, while an organizer or an administrator, such as many officers are, finds his talents not in such great demand.

Few Red soldiers reenlist. More than 80 per cent of the Soviet Union's forces are in their first two years of service. Possibly one reason for this is that a private is paid only five dollars a month, and a second-hitcher little more. It has been reported, and it is probably true, that policy in the Soviet Union limits voluntary enlistments. This is quite different from the situation in the United States, where, contrary to current general opinion, all vacancies in the Navy and Air Force are being filled by volunteers. Of the Army, 87 per cent are volunteers.

A few Soviet enlisted men break through their state-destined technical future and instead of going into that type of work, upon discharge enter in specialized secondary schools or colleges. If they complete their courses here, at least they have an opportunity to avoid the regimented pattern of the Soviet system.

THE MOTIVE BEHIND THE SOVIET'S RIF

The motive behind Khrushchev's RIF program is not clear to most analysts of the Soviet Union. He insists that the move is in the interests of disarmament. Observers suggest that he would like to get more men into the country's economy than the low birth rate of the early 1940s is making possible these 20 years later. Others believe that since he made the announcement (not the cut) before the proposed summit conference, it may be a staged maneuver to force some of the Western powers to further reduce their forces. Another source says that the administrative staff would bear a larger share of the cut than one might think, and that the reduction in fighting strength would not be so great as a quick look at the Premier's announcement would indicate.

What will not resolve the reason for the Red leader's action, but which may reveal his confidence, is that many of the 1,250,000 to be released will simply move over to the Soviet's reserves where they are forced to stand ready to get back into uniform upon practically no notice.

As to the reason for Khrushchev's consideration for his officers, anyone's guess is as good as the next fellow's. But it is probable that the observation of John R. Cauley, foreign affairs correspondent of the *Kansas City Star,* is one that could be well defended. Cauley writes: "The Russian leader has 'a hot potato' as a result of the recent order demobilizing over a million men. He is beholden to the Army for much of his support and the prospect of hostility coming from the thousands of officers, deprived of their prerogatives and privileges, has likewise caused Khrushchev to distract them by being bellicose to the West."

BUTCHER and BOLT

I want striking companies that can "butcher and bolt" (meaning shoot and scoot) and create a reign of terror along the coasts of Hitler's Fortress Europa, said the indomitable Winston Churchill in ordering the formation of what were to become the British Commandos. Captain Wyatt in investigating the wartime exploits of the Commandos and their U. S. counterpart—the Rangers—gives forces of this kind the mouth-filling title of Strategic Offense and Reconnaissance Troops, which thankfully abbreviates to SORT. What future do SORT forces have? And what are the prospects of getting them? Read on . . .

Captain THOMAS C. WYATT

SORT forces are Strategic Offense and Reconnaissance Troops—outfits that are not part of an organization geared for drawn out tactical operations against the enemy. In my book SORT units include U. S. Rangers, British Commandos, Special Air Service Regiments, Long Range Desert Groups, Long Range Demolition Squadrons (Popski's Private Army), Special Boat Squadrons, and Raiding Support Regiments; Italian Marine Raiders; those German special forces led by Lieutenant Colonel Otto Skorzeny; and Vietminh's Communist Commandos. The preponderance of UK units is understandable when you recall that the British are the foremost exponents of the use of unconventional units in modern war.

SORT-type units have a common set of circumstances among them. For one thing, their formation was resisted at nearly all headquarters except the highest. Winston Churchill tells why in his World War II memoirs:

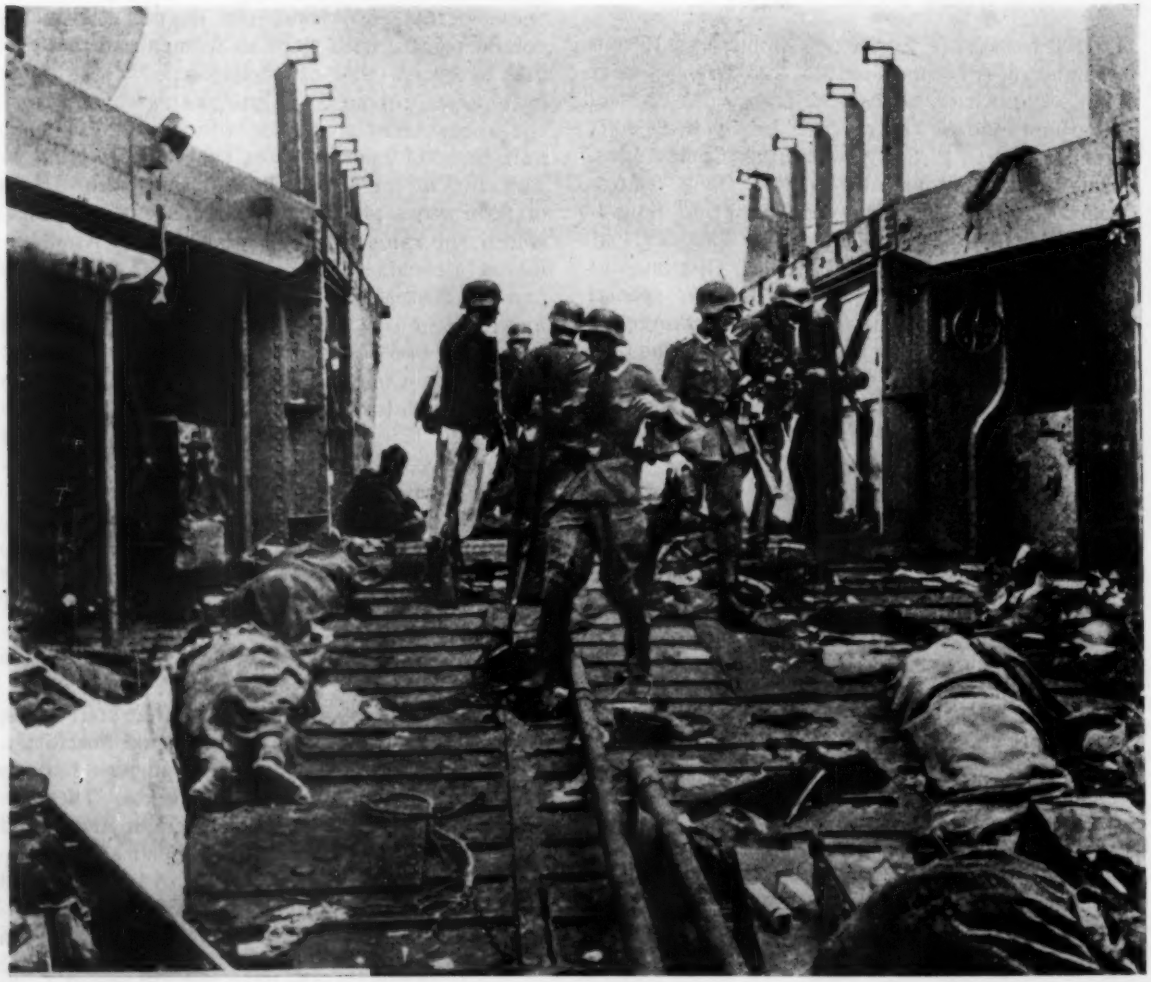
> The resistances of the War Office were obstinate, and increased as the professional ladder descended. The idea that large bands of favoured "irregulars," with their conventional attire and free-and-easy manner should throw an implied slur on the efficiency and courage of the regular battalions was odious to men who had given all their lives to the organized principles of permanent units. The colonels of many of our finest regiments were aggrieved. "What is there they can do that my battalion cannot?" "This plan robs the whole Army of its prestige and of its finest men." "We never had it in 1918. Why now?" It was easy to understand these feelings without sharing them. The War Office responded to their complaints. But I pressed hard.

Certain other circumstances are common to these outfits. For one, the degree of success commensurate with the cost in men and materiel far exceeded the expectations of their most optimistic proponents. Outstanding examples of the characteristic success which attended such units are the operations of the U. S. 1st Ranger Battalion at the Orbata-El Ank pass; the success of Skorzeny's paratroopers in "liberating" Mussolini; the raids by the British Special Air Service on airfields which accounted for 250 planes and the destruction of more than a thousand vehicles at the cost of 106 men during the wartime life of its two regiments; the many successes of the British Commandos from the 1940 raid on Le Tourquet to the operations by No. 41 Commando in Korea; similar successes by the six U. S. Ranger battalions; and the British Long Range Desert Groups and Long Range Demolition Squadron. There were many others. Operations which proved costly and unsuccessful were those which committed these special outfits as separate units, attached to a division or smaller unit, or used them to augment straight-leg infantry. For example, the repulse of the Rangers at Cisterna, Italy.

Study of these examples shows that SORT units, conceived only after the outbreak of hostilities, were born in adversity. It is my purpose here to examine the past uses of such units. Then we can inquire into their possible employment and value for the future, and their need at the moment. Any fighting unit, if it is to be successful during the initial stages of war, must be envisaged, formed and trained before hostilities commence.

Dieppe—SORT's First Big Test

Dieppe was a bloody test of "butcher and bolt" tactics for inexperienced Americans as well as more experienced Canadians and British Commandos. At left a wounded German soldier captured during the raid is led ashore by Commandos returning to England. Below, Germans inspect the damage to one of the Dieppe batteries after the raid. Opposite page, returning Commandos show the strain of the short but bitter struggle.



The first SORT units of World War II were formed at the insistence of the British Prime Minister. These striking companies, ten of which were immediately organized, later came to be called Commandos. Commandos were conceived during a desperate hour, and organized as a means of wresting the initiative from the enemy. Nevertheless, the results achieved by these troops were so splendid that they became the mold for many such units throughout the armies of all belligerents.

THE FIRST TESTS OF SORT

Before the initiative could be undertaken, it was necessary to prove the worth of striking companies. To that end, a raid upon a small French coastal village near Le Tourquet was mounted during the night of 23-24 June 1940. The mission was to kill German pilot instructors who were at a rest area there. The effort was fully successful. The hunters found their quarry lined up at the bar of the local inn and swiftly disposed of them, taking care to leave evidence that proved the deed was theirs and not that of the villagers. The spirit of the Commandos was born here.

During 1941 several successful raids followed. One, a combined Navy-Commando force that struck St. Nazaire, resulted in the destruction of the only dry dock on the Atlantic coast that could accommodate heavy-class warships, demonstrated the worth of Commandos. Spirits in England soared as that most-sought-after circumstance in war—the initiative—was most daringly snatched from the enemy's grasp. After Nazaire the Germans must have wondered where the next blow would fall.

THE DIEPPE RAID OF 19 AUGUST 1942

While the German high command demanded

tighter security and their counterintelligence agencies tried to learn more about this new annoyance, the British were planning Operation Jubilee. Jubilee would send Allied forces against the garrison at Dieppe. The greatest raid of the war was set for 19 August 1942, with No. 3 and No. 4 Commandos and the U.S. 1st Ranger Battalion teamed with conventional British-Canadian land, sea and air forces.

The mission was to silence two coastal batteries that could certainly interfere with any attempted landing in the Dieppe area. These heavy guns could traverse on any surface craft within a 9,000-yard arc of the Dieppe beaches, and would have to be neutralized before any ship could operate safely there. The successful touch-down of landing craft was questionable, and naval gunfire support for troops on the beaches would be almost impossible unless these guns were knocked out.

At first the intention was for airborne troops to capture both batteries, but the difficulties of mounting two such assaults to coincide with a seaborne attack, along with the vagaries of the weather, were judged too great. The task was assigned to the Commandos, and it was indeed one designed for SORT-type outfits.

One of these batteries was at Berneval, east of Dieppe; the other was at Varengeville, to the west. With a great deal of difficulty No. 3 Commando isolated the guns at Berneval from the action to the west. The attack on the Varengeville battery, by No. 4 Commando, proved to be the only complete success during Jubilee. Let us follow No. 4.

The Varengeville battery's six 6-inch guns were protected by two air-defense pieces mounted on flak towers to the rear. The battery lay 1,000 yards from the sea atop steep, nearly unscalable cliffs, and was surrounded by wire entanglements.

No. 4 Commando was divided into two groups. Group I, the support element, had 88 officers and men distributed among a headquarters, C Troop, a combat patrol of A Troop, a mortar section, and a communications section. It would land at Vasterival, scale a breach in the cliff wall, and close to within 300 yards of the battery. Here it would take the enemy battery under harassing fire, and short of direct assault, undertake any action that would divert attention from the second group. Group II, in assault, would land at the mouth of the Saane River and envelop the position from the flank.

The approach from the beach was partially covered by friendly aircraft firing on the gun position and by general fire from along the beach. Telephone lines were cut by the combat patrol of A Troop, while most of C Troop and several men of the 1st Rangers took up position 250 yards from the battery and began sniping. This fire was particularly effective, eliminating three successive gun crews and throwing the others into utter confusion. Mortar fire landed on cordite charges and the readied ammunition lying about. That battery never fired again.

Ninety minutes after landing, Group II—the assault force—formed for attack. They were aided by the defenders themselves who shifted their fire to engage RAF support aircraft, and by German mortars which swung from the assault troops to the landing craft that were leaving the beach. When the initial defense was reached, Group II pushed on to the planned attack against the guns. As Group II formed for the final assault, they observed the garrison preparing to counterattack Group I. This threat was quickly eliminated by submachine-gun fire. A flare signalled the assault and called for mortars to smoke the position. The assault moved B and F Troops across 250 yards of open ground and over the wire barriers. It was supported by the small-arms fire of Group I, the smoke from the mortars, and an air strike. The instant the air strike ended, the attackers were in with grenades and bayonets and secured the position. They took only four prisoners.

Two hours and twenty minutes after landing, No. 4 Commando had completed its mission and withdrew to the beach, destroying pillboxes on the way. Thus, at a cost of 12 killed, 20 wounded, and 13 missing, the only complete and unqualified success of the entire Dieppe raid was accomplished by SORT units.

THE FORMATION OF THE RANGERS

As we have seen, the repeated Commando successes led to the formation of many other similar units among Allied and Axis forces. One such Commando-inspired force was the U.S. Ranger battalions. The first Rangers were formed in 1942 in Northern Ireland from men of the 1st Armored and 34th Infantry Divisions, and V Corps units. It was designated 1st Ranger Battalion (Provisional) under Major (later Brigadier General) William O. Darby. Ranger units were not new to Americans. They boasted a glorious history in the British Colonial service dating back to Major Robert Rogers' Rangers during the French and Indian Wars.

In all, six Ranger battalions were activated. The 1st, 3d and 4th fought in Africa, Sicily, and Italy; the 2d and 5th in northwest Europe; the 6th in the Pacific.

The Rangers fought some awe-inspiring and colorful actions, but these actions are slightly inadequate to demonstrate the true superiority of such units over conventional formations in special operations. This difficulty of comparison stems partly from the fact that Ranger units most often

El Guettar was two months away when, in January 1943, men of the 1st Ranger Battalion made a speed march over the hills of Algeria in the process of hardening themselves for battle

were used independently, with one exception: at the Orbata-El Ank pass in Tunisia in 1943.

THE RANGERS BEYOND EL GUETTAR

March 1943 found U.S. II Corps about to strike east for the coastal towns of Gabes and Sfax. This thrust would carry it across the Tunisia plain into the Axis rear to drive a wedge between the Mareth Line and enemy-held Tunis, to the north. The 1st Rangers and two combat teams of the 1st Infantry Division assembled east of Gafsa to launch the attack along the two routes out of El Guettar that carried to the Mediterranean. The Axis defense was stubborn, with a counter-attack potential that had been husbanded in previous actions against U.S. forces.

The El Guettar-Gabes road, route of the 18th Infantry RCT, had to its south a shallow salt lake (impassable to vehicles) and the cliff-like walls of Djebel Berda. To the north were the defensible slopes of Djebel El Ank and the funnel-shaped entrance to the pass between El Ank and Djebel Orbata. The general area was typical of most of the North Africa battle ground: bleak, jagged ridges and arid valleys offering no cover other than scrubby desert brush.

The north prong would be the 26th Infantry RCT, which would push up the road to Sfax, through the Orbata-El Ank pass, generally paralleling the Gabes road. The success of the attack along the Gabes road hinged entirely upon the success of the force that was to take the left (north) fork through the pass. Djebel Orbata, the range to the north of the pass, commanded the ground about El Guettar, while from the height of El Ank, to the south, the defender could support his Orbata defense of the funnel-shaped entrance, or could control the Gabes (south) road.

The pass would have to be seized to allow the 18th RCT to reach Gabes, and tightly secured to permit the 26th RCT to push through to Sfax. This funnel was the key that would open the route to the Mediterranean. The enemy took full advantage of his terrain and prepared it for defense. Across the mouth were minefields laced with bands of barbed wire and protected by fire. The road through the pass was guarded at intervals by roadblocks, more mines and wire. It was so

narrowed by the slopes of the mountains on each side that vehicle turnaround was restricted and maneuver almost impossible. Mutually supporting gun positions dug into the irregular rocky sides could also cover the wire and mine obstacles. An Axis force of regimental strength was thought to be holding the entrance to the pass.

The 1st Ranger Battalion was to deny the enemy the use of the funnel, thus protecting the flank of the Gabes (south) thrust. In addition, it would seize the pass and continue to attack in support of the 26th RCT, on order. Once the pass was secured and the funnel under control, this assault would become the secondary effort.

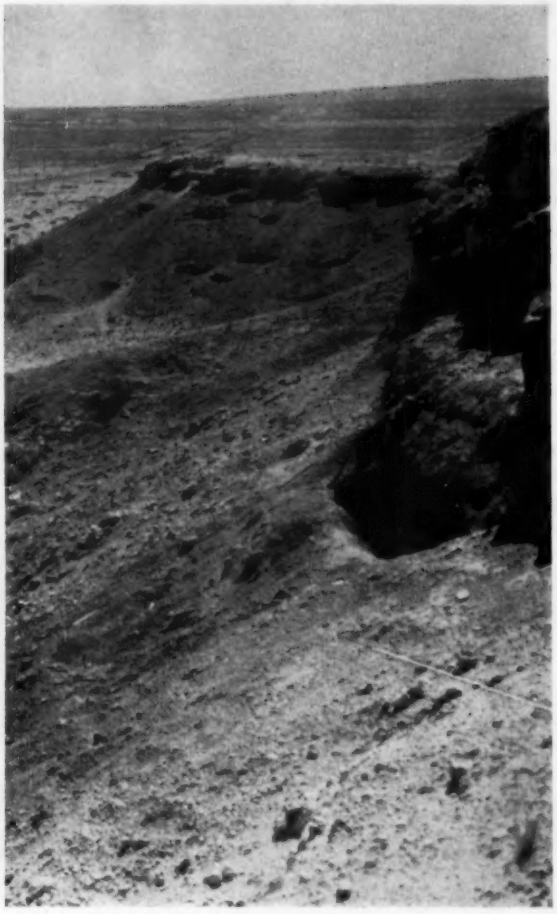
Company D, 1st Engineer Battalion (1st Infantry Division), was attached to the Rangers. This company could fight as infantry, and its organic 81mm mortars would provide the Rangers additional support. In addition, Company D had organized "Hell Squads" which had undergone rigorous training in assault methods and were considered the equals of Rangers.

TAILOR-MADE FOR SORT

On 18 March 1943 the 1st Rangers seized the oasis village of El Guettar; from here they moved to attack the Orbata-El Ank pass. Subsequent probes confirmed the belief that the enemy had every intention of holding onto his critical terrain, now considered strategically important since it was the last obstacle to the link-up of U.S. and British forces.

For three days Ranger reconnaissance patrols probed the pass area, trying to find a weak spot in the enemy's defenses. Patrol reports supplemented and confirmed information from friendly Arab shepherds. An approach route for the battalion was laid out along the north face of the pass. This was a tortuous series of gorges, crevices, saddles and slopes. Earlier reconnaissance indicated that the entire route of 12 miles could be traversed without exposing a man to observation from the pass. The route ended in the valley slightly above and behind the enemy's defenses. One disadvantage was that the approach could be successfully defended at any of the many narrow defiles by a section of machine guns; also, because of its impassability to traffic, the 81mm mortar was the heaviest supporting weapon that could accompany the Rangers. Of course, this meant that the approach would have to be made stealthily, and the attack launched in complete surprise. For an assailant inferior in numbers and supporting weapons, it would have to be delivered suddenly and with great violence.

It was decided to advance during darkness of 21 March to gain position in rear of the enemy's strongpoint. If the force were undetected during its approach, the assault would be at first light next morning. Here was a situation tailor-made for SORT units: a night movement against odds through defying mountainous terrain, to spearhead a large-scale, vitally important strategic offensive.



Foxholes dug into the barren hills overlooking the Gafsa-Gabes road

At 2300 on 21 March the battalion moved out from El Guettar, across the ridges and through the defiles of Orbata. The assault was to begin at about 0500 on 22 March, after a rigorous 12-mile march. The route would bring the Rangers to a small bowl-shaped plateau, about 200 yards wide and 600 yards long, some 700 feet above the valley floor. This position was parellel to and north of the road through the pass, almost 1,000 yards in rear of the entrance to the funnel—right on top of the defenders. The schedule would allow the attackers 30 minutes to rest and reorganize before the assault, because they had planned to reach the plateau by 0430.

The order of march had placed the engineers with their mortars in the middle of the battalion, but they missed a check point and the men of

Company D fell in at the tail of the column as it left El Guettar. The pace was most gruelling, and after three hours the mortars were temporarily lost to the Rangers. Lack of time would allow no excessive waits, so guides were left along the route to direct the Engineers to the assault position.

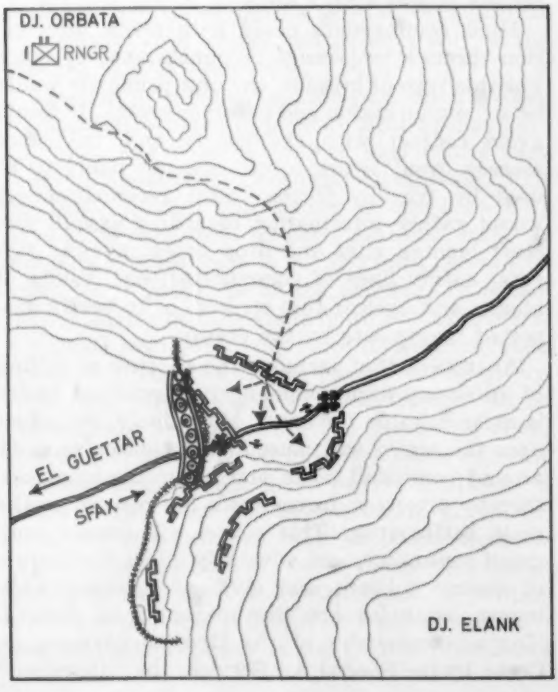
A BUGLE SOUNDED THE SIGNAL TO ASSAULT

At 0430 the Rangers, now on the plateau undetected, immediately deployed. Companies A, B, D, E and F assaulted abreast; Company C remained on the plateau to await the Hell Squads and their mortars.

The morning calm was split by the blare of a bugle from the heights of Orbata—the signal for launching the Ranger assault. Before its echo had died, submachine guns, grenades and even bayonets were seeking out the enemy. The surprise was complete. Most of the defenders were killed or captured as they rushed to man their positions. Twenty minutes after the assault, more than 200 survivors were prisoners. The attack moved from one position to the next, as directed by Darby, so as to methodically reduce the pass after the initial surprise had been achieved. The Ranger companies, supported by 60mm mortars from the battalion's position on the plateau above, broke off into small actions by sections and platoons which by 0650 ended resistance north of the road.

Meantime, the 1st and 3d Battalions of the 26th Infantry began moving into positions near the mouth of the funnel, ready to exploit the Ranger success and launch their own attack through Bou Hamran (east of the pass) to Sfax and the link-up.

The entrance to El Ank-Orbata pass, the road to Sfax, and the approach march of the Rangers



Resistance in the funnel was reduced to a few deeply dug-in machine guns on the slopes of El Ank south of the Sfax road. The Engineer company arrived on the plateau at 0900, four and a half hours behind schedule. Their 81mm mortars were quickly set up to fire on enemy guns south of the road. After the devastating fire of these mortars had lifted, Company C of the Rangers bayoneted the enemy crews loose from their guns.

Darby then fanned out all six companies to move over the slopes of Orbata and El Ank, mopping up the few remaining enemy. At 1220 the Rangers sent word to the 26th RCT that the defenses of the inner pass, which had offered the heavy resistance, were cleared. After this success, two Ranger companies turned east to attack Bou Hamran. At 1250 the 26th moved into the pass and the 1st Infantry Division ordered the Rangers into reserve.

Success was complete, and the pass secured with light casualties (it was after 1200 hours before the first Ranger fell to enemy fire). During this action 1,400 prisoners were bagged, complete with weapons and equipment. Seizure of the pass by these SORT-type troops had secured the 1st Division's north flank and opened the routes to Sfax and Gabes. Continuing pressure by II Corps from this point made Axis positions untenable, and they were abandoned. The link-up with Eighth Army effectively blocked the corridor to the south and heralded the begining of the end of Axis resistance.

SORT OUTFITS IN KOREA AND INDOCHINA

Operations by both friendly and enemy SORT units during the Korean conflict are, for the most part, still cloaked in security. While details are sketchy, we know that a raiding battalion was formed by U.S. Eighth Army during the early days, and with satisfactory results. Airborne-qualified Ranger companies also were formed, and the British Commandos — never disbanded after World War II—reappeared to work with South Korean marines. It is worth noting that after the relief of organized Ranger companies, many organic Ranger-type outfits were formed by infantry units. This indicates that commanders see the need for SORT.

The Communists in Indochina used SORT forces most effectively against French and Vietnam garrisons. Black-garbed Vietminh raiders struck airfields, destroying 78 U.S.-built transport and cargo planes employed in the efforts to resupply the beleaguered defenders of Dien Bien Phu.

Having examined the past, let's now look into the tactical principles that should guide the use of SORT units in the future. Since we have been dealing essentially with raids, we must clearly understand the difference between raids and clandestine operations. Raids strike into enemy-held territory, and end in withdrawal or link-up with friendly forces. Such actions, while normally carried on for strategic purposes, may also have tactical applications. Clandestine operations by guerrilla forces in civilian clothing, usually are carried on in enemy-held territory over extended periods.

NO CLOAK-AND-DAGGER MEN

Control is one of the most vital factors that determine the success of raiding operations. Success by raiding units is uncertain when they are controlled by units below corps. This was proved again and again during World War II, and ruefully re-learned in Korea. A possible safeguard might be built into the organic structure of such units: numerous independent small units under a single command-administrative headquarters that controls only a portion of them, while the rest refit, train, and make ready for the next mission. But it can be expected that corps may sometimes find it necessary to order subordinate commanders to plan and execute *special* operations by raiding forces in support of corps missions.

Every measure must be taken to dispel the idea that Strategic Offense and Reconnaissance Troops are cloak-and-dagger men, or outfits of loose-living, undisciplined troops who fight more like gangsters than soldiers. Also, it is most important to correct the popular belief that such units are made up of expendable supermen who don't care whether they survive or perish. It follows, then, that we must exercise reasonable prudence while planning and executing their operations. SORT units, because of their attitudes and training, will be able to undertake more hazardous operations than will ordinary troops. Nevertheless, they should not be given missions which offer no chance of survival. Raiding forces should not be designed for nor employed in extended operations, for that would sacrifice their mobility.

British and Canadian Commandos developed training tests such as this water trap at a base near Tor Bay, Newfoundland

MISSIONS FOR SORT

SORT forces could be used effectively in the main battle area to destroy enemy forces and materiel; to regain the initiative during adverse situations; to secure intelligence and conduct long-range reconnaissance; to deceive the enemy into shifting forces out of the main battle area; to assist our psychological warfare effort; or to seize positions of strategic value to the enemy.

Behind the enemy's immediate battle front SORT units could attack tactical command posts and the headquarters of high commanders; destroy communications centers and facilities and supply installations; attack special weapons delivery systems; destroy airfields and parked aircraft; ambush enemy mobile reserves; seize terrain vital to large-scale offensives; and direct air strikes behind enemy lines.

High commanders could gain much information through long-range reconnaissance by SORT. For this type of mission, the unit primarily would be a communication and observer group. It would avoid contact with the enemy and, to insure secrecy, would work in an area not likely to be used by friendly forces. Such reconnaissances would gather information regarding assault aircraft landing sites and drop zones; nuclear targets; enemy lines of communications; results of atomic and nuclear-free strikes; or to verify suspected movements by the enemy.

An attack that includes the capture or killing of an enemy high commander or political leader is most suitable for SORT. Most likely, the effect upon the enemy will cause him to tighten security around command posts and other headquarters, thereby diverting forces from his reserve or the main battle area. This action will impair command continuity, and adversely affect the morale of enemy soldiers and civilians. Among well-known examples are the kidnaping of General Kreipe, commander of the German garrison on Crete, by the Special Air Service; the "liberation"

of Mussolini by Skorzeny's raiders; and the abduction of Admiral Horthy, Regent of Hungary, again by Skorzeny's forces. Even the mere threat can throw a large headquarters into a tizzy. For example, the fear for the safety of General Eisenhower by his staff at SHAEF during the early days of the Ardennes counteroffensive—even though, Skorzeny tells us, his capture was not among the German plans. The attack was aimed at seizing or isolating the bridges over the Meuse River.

The actions of SORT units can serve to tie down enemy forces. We know that in the Adriatic area during 1943 the efforts of such forces tied down elements of three German divisions in Greece. A more recent example is the activities of British No. 41 Commando (a Royal Marines outfit) in Korea. Their efforts diverted 5,000 enemy troops from the main battle area and forced them to construct a hundred miles of trenches along the east coast.

The champion of SORT units encounters no small degree of opposition. Objections are as understandable and persistent as they are refutable and varied.

CONVENTIONAL OUTFITS CAN'T DO IT

Some combat veterans maintain that tasks performed by SORT units during World War II and in Korea could just as well have been performed by straight-leg forces; and that in the future, if the need arises, these missions can be performed by ordinary units. They say these special formations—by the very nature of their missions—demand the highest type of combat leaders and exceptionally proficient troops. These must be drained from other outfits, so the organization of a special type of unit can be done only at the expense of many others.

This sort of thinking is doubly fallacious. When standard units were ordered to fight as commandos, they had to be trained as SORT before they could be committed. This entailed valuable training time. In the future, such an operation may have to be performed by battalion-sized units. If a standard outfit were to be used for a specialized operation, it would be at the expense of the tactical integrity of the parent unit. For example, if a mission required a task force of two companies adequately supported, the parent battle group, when this strength was drained from it, would immediately become ineffective. No battle group commander would be enthusiastic about entering or continuing combat under such conditions. It follows, then, that the parent battle group, because its strength has been depleted, must revert to division reserve. No division commander would be overjoyed at the prospect of fighting with less than his full combat complement. The loss of fighting power is too high a price for a specialized mission. It is more expensive than drawing selected soldiers from a much larger formation which, because of its size, can better absorb the loss.

WHERE DO WE GET THE MEN?

These factors, plus that of training-time lead, must necessarily bear upon the feasibility of specialized operations by SORT. But let us look farther. For specialized operations, to bring a straight-leg unit up to par with a SORT outfit, undesirable or unqualified men must be screened out, thus creating a replacement problem even before training begins. If these men are not culled, their retention creates the proverbial weak link. After they are culled, we face the original problem: "Where do we get these desirable types?"

Logically, the next question concerns bleeding straight-leg units so that SORT units can have the best. Veteran battle commanders say it is a mistake to load all the talent into one unit while robbing all the others of the ablest leaders and best-qualified men. Standard units will suffer as a result. Individual battle performance, morale, and over-all efficiency of combat units will be markedly improved if Ranger-trained soldiers are integrated into these units.

Supporters of SORT argue that it is a mistake to believe that the U.S. Army can produce only a handful of leaders and dedicated soldiers of the caliber desired by SORT. If this were true—certainly it hasn't been since 1775—there is little sense in our maintaing *any* military forces except to preserve domestic order.

As yet we have no evidence to support the premise of improvement through individual integration of Ranger-trained men. Ranger units may be formed at little expense to Ranger-integrated outfits. This would parallel current conditions where standard units capitalize upon airborne-trained men. Actually, the Ranger fights no differently than the straight-leg soldier. Neither does the paratrooper. Like the paratrooper, the Ranger is merely better conditioned mentally and physically to perform more demanding tasks with a few additional skills acquired in special training. If they are to maintain and preserve their conditioning and skills at the proper degree, if they are to be constantly prepared for combat, it is best to keep them in organized units.

The solution to the problem of Ranger units versus Ranger-integrated units is beyond the scope of this article. It is important that we realize the need for SORT units now, though the solution be neither simple nor immediately at hand. I have merely attempted to scratch the surface, to provoke constructive thought on the matter. We will arrive at the solution only after bold thinking. That is not to great a price for progress.

Combined Arms Battle Group

If it hopes to influence future joint command councils the Army should take necessary steps now to shape up its own battle order and unite its combat arms

Colonel JOHN D. BYRNE

MODERN command no longer concerns itself with the battlefield union of foot, horse, and gun; instead it centers upon the joint enterprise of assigning tactical objectives and allocating logistical resources to units of the Army, Navy, and Air Force that are present in the fighting zone. Hence, the continued separation in battle of the combat arms wastes the division command and staff's strength and time on internal coordination. Worse, because the old field artillery mission now has air and naval portions, much of the command problem of heavy fire support leaves the division in fragmentary, unresolved form for coordination higher up. The division commander, the rock upon whom army planning and operations are built, is therefore trapped in coordination, both up and down the command ladder.

If the Army is to influence the joint command enterprise, we must unite our combat arms forthwith. Since the armored division has been with us for twenty years, and the infantry division has long had its own tanks, the union of infantry and armor is well in hand. The basic step that remains is to broaden the battle missions of infantry and armor to include the task of light artillery. But the idea of joining these into a single arm will be immediately challenged as impractical because it cuts across the traditional grouping of Army officers by branch. None of us wants to support a change in organization which will break his life-long association with comrades-in-arms. I suggest that we can accomplish the needed reform by organizing the necessary number of the new combined-arms units, and by allowing each combat arm to man a proportion of the total according to whatever may be the current relative officer strength of infantry, armor, and artillery.

TRADITION MUST BE JOLTED

The tradition of the specialized arm has to be jolted—and soon—because the modern command concept has long since passed it by. No longer is it possible to have the unity of command that used to exist when the division contained all types of infantry, cavalry, and artillery fighting units. Under the guise of offering firepower support, the modern artillery of guns, ships, planes, and missiles takes the basic part of command decision—combat intelligence—upward through a series of staffs and headquarters. The enemy situation, or the commander's estimate of what is going on in front of his troops, remains an open question until all the various weapons-owning commanders have been consulted, and the required "coordination" has been completed. Even if the Army's division commander makes the ultimate decision (as a result of having his recommendations acted upon) he does so at considerable loss of time.

Thus, we see that progress to date in the growth of modern command machinery (that is, the creation of the FSCC system) is nothing more than a halting evolutionary step. The fire support coordination center deals with only one aspect of the command problem: fire support. All

that the Navy and the Air Force have undertaken is to coordinate the extent to which they are willing to commit themselves to a field artillery mission. From an Army point of view, this approach has two serious drawbacks. First, the joint intelligence debate is limited to what is going on in front of the Army units, while the intelligence situations of the other services remain the subjects of almost unilateral judgments. Second, no logistical debate is entered upon: each service is expected to solve its own problems in the light of the joint operational decisions reached.

The serious shortcomings of the FSCC arises from the Army's retaining an organization of separate combat arms that splits up command responsibility in a way that makes it easy for the heavy firepower mission to be taken partially out of the division commander's hands.

By keeping the combat arms separate, and by accepting the FSCC within the division, the Army is barring itself from the basics of military command: the determination of proper operational combat missions for all forces present in the theater, to include a priority for their accomplishment, and the allocation of available logistic resources to fighting units in accordance with this priority.

To accomplish this reform we must work not from the Pentagon downward, but from the foxhole up. Modern equipment and techniques enable the front-line commander, with only a few skilled assistants, to exercise complete command at battle group level. Moreover, the method is so simple that it will work equally well at brigade and division. For the division commander, it will provide more effective inter-headquarters control of his subordinate units and simpler communications networks.

THE SMALL-UNIT STAFF

The sketch on this page shows the keystone of my proposal: how simple it is for the modern commander to control a combined arms responsibility through an effective staff. The basic S1, -2, -3, and -4 staff system needs to be modified only by the addition of a gunnery section under S3. In the main, officers like the executive, S2, and S4, simply broaden their interest from one arm to the combined arms problem. From a command point of view, the most important single action is the broadening of the interest of S2. At the grass roots, S2 unites the intelligence problem of the shock forces and of the heavy firepower forces, and puts it into the Army command channel as an ingredient of command decision. Thus, given a few changes in his staff, the front-line Army commander can control rifle companies, tank companies, artillery batteries, and strike elements of Navy and Air Force units.

This more versatile staff must be served by a few small units able to carry out three important functions: intelligence collection, survey, and fire control.

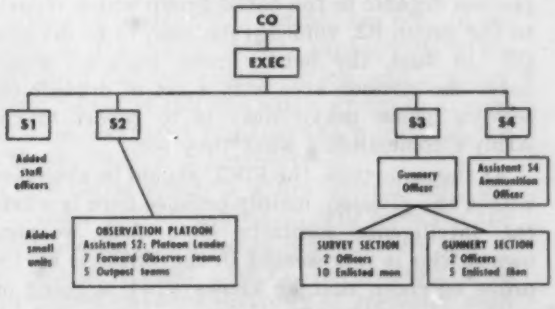
COMBAT INTELLIGENCE COLLECTION

In the good old days, command and intelligence were united at division headquarters in the person of the division commander. The shock arms—infantry and cavalry—turned in the basic intelligence data, and a quiet double check was provided by the field artillery. The division commander, integrating the information given him by all arms, made the tactical and logistical decisions which expended the available supplies and ammunition in support of his scheme of maneuver. Today, the quiet intelligence double check that the field artillery used to perform for the division commander has been scattered among the Army combat arms, the Navy, and the Air Force. In the process it has become public business, spread among many headquarters. Meantime, the tactical intelligence enterprises of the Navy and Air Force have, if anything, grown more private. Here is the precise reason why the battle group and the combat command must take on the light artillery mission: the Army's fighting leader must regain complete responsibility for the definition of his own intelligence data.

Within the division the commander's control problem involves a unique form of intelligence; that is, the timely fine details of close combat by platoons and companies. This is nothing more than eyewitness reports by front-line fighters, systematically turned in and kept up to the minute. For this, no machine can replace the human element. In fact, the basic reports of the humans in contact with the enemy provide the foundation for the use of intelligence collection machines such as aerial cameras and reconnaissance drones. And the human reporter has a timing device which can never be built into mechanical surveil-

The Secret Weapon

The Unified Maneuver-Firepower Staff



For the infantryman there can be no "sighted sub, sank same" . . . target spotting on the land battlefield is far from automatic

lance of the front, because when he feels enemy pressure he yells—immediately and loudly.

Moreover, it is high time we gave the company commander some systematic assistance in intelligence collection. He and the battle group commander deal in judgments which involve their personal courage, their trust in one another, and their responsibility for the lives of their men. As far as is possible, the company commander must be spared the feeling that his communications to the battle group commander are bids for support in his sector. We can do this by backing up the commanders with an observation platoon organic to the battle group. This platoon will keep all commanders commonly and simultaneously aware of a situation which is built up piece by piece. Thus, the personal effort of the commanders, and their command communications, can be concentrated on decision-making.

We must remember that in land combat target identification is not automatic. For the infantryman there can be no "sighted sub, sank same," or "unidentified aircraft at 12 o'clock high." A few explosions, the movement of three or four trucks, some glimpses of isolated tanks and halftracks, together with the appearance of small groups of enemy infantry, must be built up by an intelligence collection process into a worthwhile target. The least the Army can do, therefore, is to make its total intelligence reporting follow the command line from battle group, to division, and upward. This can be done by an observation platoon organic to the battle group which reports to the group S2, who in turn reports to division G2. In sum, the battle group platoons would cover the division area with a net of organic observers whose major duty is to report to the Army's commanders what they see.

At the same time, the FSCC should be abolished within the division, mainly because here is where the intelligence kibitzers live. Any weapons owner who is represented in the FSCC is all too prone to claim that he knows what is going on in the supported unit's sector, even though he is served by only one pair of eyes. In other words, the FSCC has equalled the intelligence service provided by the field artillery when the artillery was the single source of firepower for the infantry and cavalry. As I shall show later, the battle group S3 and the division G3 sections can take over the operational job of the FSCC. In the future, the FSCC should exist only at corps and higher. Forward air controller parties and naval gunfire parties should be the only blue-clad elements functioning within the division.

The intelligence theory I advocate is this: that systematic collection and reporting from all sources within the battle group should build the factual background to enable the battle group leader to reach a commander's estimate of the situation, and thus a decision. When I say all sources, however, I include the important addition of an organic observation platoon, complete with communications. This platoon provides two essentials: an officer in each small-unit area whose primary job it is to report what he sees, and a radio net for passing detail to battle group without jamming command channels. Clearly, such an organic effort is simpler than having the commander make up his mind by combining the presentation of his own people with the individual viewpoints given him by each faction represented in the FSCC. In other words, true command decision at battle group is possible only when the commander is completely informed of a total situation which has been built up on his mapboard by his organic staff. The same is true at division.

Luckily, we will not have to convince the manpower experts that for intelligence purposes the battle group needs an observation platoon. This same unit also adjusts artillery fire: it provides the traditional forward observer parties and observation post details, and as such is an important part of the battle group's fire control mechanism.

THE PROBLEM OF SURVEY

The real link between intelligence and fire control, however, is survey. Each report, and every use of a weapon, must be tied to accurate coordinates. Thus, the battle group needs a survey section (1) to provide accurate geographic control in the battle group area, and (2) to locate observation posts and weapons in terms of this control. After completing these tasks, the surveyors undertake the never-ending job of locating key points in the enemy area.

The more rapid-moving the situation, and the more dispersed a battle group, the more important the job of survey. The key problem is providing accurate azimuth. If the battle group asks a neighboring BG for fire assistance, but has a 10-mil deviation in the azimuth of its guns, at

mid-ranges an error of some 50 yards will result. But if 155mm guns or long-range missiles are asked for, and if they apply the same 10-mil deviation at ranges of more than 20,000 yards, the resulting fire will miss the target by hundreds of yards, and may endanger friendly troops. When a jet aircraft comes in at low altitude, the pilot must release his bombs or rockets a certain distance from a prominent reference point. At his speed, the details of the target will be blurred. Again, if the enemy is to suffer, and if our troops are to be safe, the battle group has to locate itself accurately.

Here we must digress to point out that one of the most simple and rugged survey instruments is the light field piece. The battle group's weapons must include some organic 105mm howitzers to locate by fire, targets that are quite deep in the enemy lines. In special situations, the 105 must be replaced by the 75mm pack howitzer. The 4.2-inch mortar won't do: it lacks the range for this task, and presently lacks the technical capability of accepting corrections for weather. Thus we see that it is logical for the combined-arms battle group to have an organic 105mm howitzer battery. Together with the survey section, the light battery can locate the close-in targets so that the rest of our arsenal can be brought to bear. And the battle group staff can provide the necessary fire control.

FIRE CONTROL TECHNIQUE

The battle group must have a simple fire control technique that can bring down heavy artillery, missile, naval gunfire, and air support on targets discovered and taped in by its old-fashioned but useful mortars and howitzers. The methods used must be adequate to apply correction for differences in geographic location, ammunition, and weather.

The necessary technique is not new, and it is not mysterious. It amounts to nothing more than a dispersal, a pushing down to batteries, of the U.S. artillery's famous fire direction center. Since 1940, every artillery battalion has trained each of its batteries to take over its fire direction mission in emergency, because it has always recognized that a battalion FDC is a nerve center that can be easily knocked out. This emergency procedure of battery fire direction has long since become a standard method of fire direction within the field artillery. The modern divisional medium battalion, for example, includes 8-inch howitzers and Honest John rockets. It is not efficient to figure data for these different weapons at one spot, so now the composite battalion uses the methods of a division artillery headquarters. The batteries are told where to fire, when to fire, and how much ammunition to expend; they, in turn, figure the detailed data for the weapons.

We have been talking for years about dispersal on the battlefield . . . now it's time to get a staff system that will make dispersion possible

In other words, a fire direction center should exist only in a battery or company that actually owns guns, mortars, rockets, or missiles. At battalion, battle groups, brigade, and division, the staff should not have an FDC, but what we might call a gunnery section. The difference is that a fire direction center computes data for the guns, to include ranges, deflections, and corrections; a gunnery section, on the other hand, concerns itself only with the location and nature of targets, general corrections such as weather and survey data, and the amount of ammunition to be expended on a given mission. This last function requires close contact with S2, with the combat intelligence function described earlier. A gunnery section controls batteries in the way a division artillery FDC controlled battalions during World War II.

Once the details of control of the guns are turned over to the battery, the gunnery section at battle group gains the necessary freedom of action to replace the lower FSCC. It can easily control the organic 105mm howitzer battery we have recommended; it can also control attached artillery, either as separate batteries, or as a battalion. If a battle group happens to be in reserve, its artillery can be attached to a battle group in the line. Using only liaison sections or forward air controller parties from the Navy and Air Force, the gunnery section can control front-line naval gunfire and close air support.

Under this system, the organic fire control resources of the battle group, through its staff, observation platoon, survey section, and howitzer battery, would enable the battle group to accomplish as a command function the work that the FSCC now does as a committee.

If the battle group is a fire control unit, the fire control net of a division will embrace the gunnery section of division headquarters and of every major combat unit in the division. I do not underestimate the difficulty of operating such

a large fire control net. In the first place, all too often the enlightened self-interest of each of the five battle groups will have to be subordinated to the common good. In crack battle-tested divisions, the communications discipline of nets of this type has been the ultimate achievement of training plus experience. But the difficult nature of the problem underscores the need for taking it away from the attached elements represented in the FSCC and making it an organic command task within the division.

A UNIFORM COMMAND SYSTEM AT ALL LEVELS

Some doughboys will be thinking that the combination of missions will generate elephantine staff and command post organizations. I submit that we have an unwieldy system now. Our three-headed monster of division staff, division artillery headquarters, and FSCC is too cumbersome for fluid situations, mainly because of the communications difficulties of keeping these three installations commonly and simultaneously informed. Functionally, the modern division headquarters must be simplified. To do it we must create a uniform command system at division, brigade, and battle group.

Remember that the battle group is the sole survivor of the regimental combat team. Its total staff problem never was, and never will be, one which can be handled by a few men huddled in foxholes. The modern battle group commander will have to work in echelons, with his entire staff as protected as possible, and with small advanced command posts pushed out among his line companies.

I do not mean that the battle group must have a plush headquarters. Mainly, we must face the fact that the battle group CP is an important communications hub. Some staff organization must exist to keep traffic in this volume sorted out, or the commander can't receive or give out orders. Faced with the eternal difficulties of running his headquarters circus, and at the same time leading his combat elements, the sensible commander has always used echelons. A very tiny advanced CP can get a lot done when backed up by a nearby "main."

Viewing the division as a whole, then, it appears logical to spread out the division headquarters; to make the battle group a miniature division. Once this is done, the Army's command function is made a simple thing which can be handled by a general staff, a battle group staff, or a small advanced CP.

If function is simple and uniform, the dispersal of personnel and equipment is relatively simple. For example, the brigade idea, the provision of an alternate division CP for the assistant division commander, can be expanded to place two or three brigades in each division. Similarly, the executive officer of the battle group can be given a small tactical staff to control two or three companies.

For several years now we have been talking about dispersal on the battlefield. It is time we adopted a staff system that makes dispersal possible.

TRAINING THE ALL-ARMS BATTLE GROUP

Our modern training methods, developed from experience in World War II and Korea, can achieve the individual needs of both officer and enlisted, for the all-arms battle group. In fact, the tank destroyer units of twenty years ago reached an impressively high state of training for a combined shock-firepower mission. The reason was simple: each battalion had assigned to it a mixture of infantry, cavalry, and artillery officers. In the armored divisions the same combination of talent has provided the flexibility about which tankers like to boast.

My basic organizational idea proposes immediate combined arms responsibility mainly for the division's field officers. The added small units, such as the survey section, can be provided by using currently extant specialist training programs—in this instance, field artillery. It is most important to note that individual training has not been changed in the company. In fact, it is to be hoped that the training of companies would be facilitated by two factors: the closer contact to be expected among rifle companies, tank companies, and artillery batteries, and the better supervision to be given through its all-arms knowledge by a battle group staff and command.

Unit training admittedly will be more difficult, and will take longer for a combined-arms battle group.

The sooner we face up to this requirement the better. Today's easier-to-train battle group can function in battle only with the support of numerous attached units. Yet the battle flags of these support units, like those of the GAR, flap only in the imagination of military writers. Peacetime economies always cut off the support units, ignoring the facts that in combat their presence is vital and that they require highly trained specialists in large numbers.

Certainly in our Army at its current limited size, the combined arms battle group will get more done within limited resources. The old blueprints of mobilization by separate arm can be kept handy for a mobilization of unexpected degree.

We began this discussion with the declaration that command responsibility must be unified and placed in the hands of battle group and division commanders. This responsibility applies in train-

ing as well, and to the training of those supporters who are supposed to appear on the eve of battle. It is no trick to turn out individually trained forward controllers, radio technicians and jeep drivers—Army, Navy, and Air Force. But it is a tremendous task to make them into a team, especially if they are a mixture of Army, Navy, and Air Force. The most difficult tasks are the training of communications personnel and the disciplining of communications nets to make all these small teams and the battle group function as one.

In other words, command control is effective only after it has been imposed during a period of training.

JOINT OPERATIONS: NAVAL GUNFIRE AND AIR SUPPORT

The Navy and the Air Force should find the all-arms battle group easier to work with. Navy and Air Force parties in the forward area would be deployed at the command post or at the observation posts of the battle group. Their strike forces would function as they do now. Here the key word is control: the battle group commander should be using Navy and Air Force liaison and controller personnel to carry out his mission, drawing upon Navy and Air Force resources already allocated. Most emphatically he would not be submitting his intelligence and firepower situation for coordination. Yet, at the same time, he would be engaged in the work of coordination as preparation for future operations. And this coordinaton, instead of being attempted through an FSCC-JOC system, would be passed up the chain of command to the joint commander. The distinction I make is this: coordination, or the allocation of priorities and resources, is the work of high staffs; resultant operations are passed to the control of the command and staff at battle group.

The method we ought to use is simple: when a Navy or Air Force party reports to battle group, it is posted with the gunnery section, a forward observer crew, or an outpost detail. For example, to adjust naval gunfire, the gunnery section could use a Navy liaison party at the battle group CP to advise on the location of the ship, the availability of ammunition, and the communications problem. In most cases the actual adjustment would be conducted by an Army forward observer. On the other hand, to control an air strike, a forward air controller could be placed in an observation post—if necessary one specially built for him—along with an OP detail from the observation platoon. Then, the "talking in" of the aircraft, and the movement of the assaulting troops could be controlled by the battle group commander using the communications of the observation platoon and the normal command net.

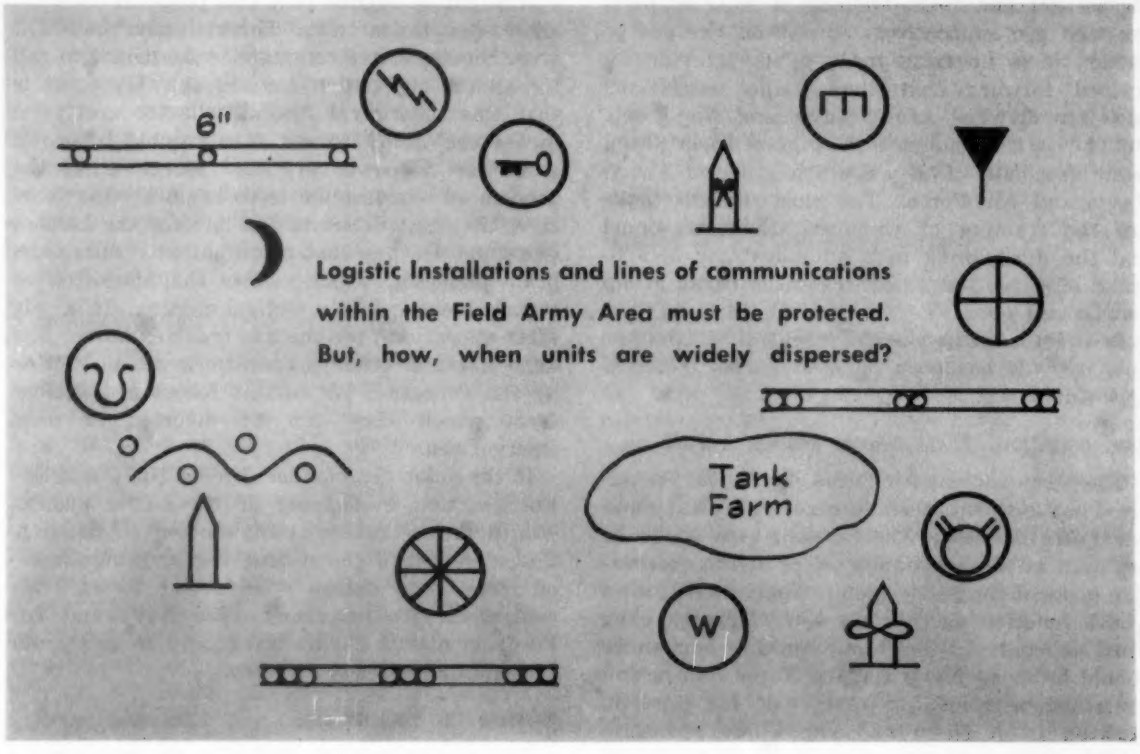
It might be argued that this proposal does not allow enough flexibility. Theoretically, the FSCC gives the supported commander the means to call for all the support in our arsenal. My point is that this theoretical flexibility is too costly: it forces the Army to get into trouble before it gains top firepower priority. Moreover, if the process of coordination is to begin at this juncture, the fire will arrive too late for the current situation. I argue that coordination results from prior planning, which causes the allocation of certain resources to a tactical mission. It is only after allocation that one has true flexibility. The logistical and other preparations set in motion by the allocation put certain forces in positions from which they can be diverted to meet emergencies.

If the joint commander directs Navy and Air Force action in support of the battle groups, "coordination" ceases at the moment of decision. Therefore, at division and battle group headquarters, only liaison officers and forward air controllers are necessary. The Navy and Air Force men with Army units help to carry out fire missions already directed.

CROSSING THE MOBILITY LINE

Our enemy has not been slow to challenge us under conditions which play upon the weaknesses of our organization. In fact, the Communists carefully challenge us to fight on their side of a global Mobility Line. It is a Mobility Line because it bounds a carefully selected zone where American machines cannot enter because of the terrain and the weather; where combat is man to man.

Our first reaction must be to unify our command mission so that the leader who takes a battle group across the Mobility Line is not a coordinator, but a commander. Specifically, he should not be forced to carry across the Mobility Line a committee like the FSCC. What he needs is an organic staff able to deal intelligently with the problems of maneuver and firepower. Even if the commander has to rely on native mules, he should be able to take with him a command capability able to deal with the whole combined arms mission. He should have a staff complete enough to duplicate the staffs above him at brigade and division, and the necessary small units for intelligence collection, survey, and fire control. He must be able to tell higher headquarters where he is, where the enemy is, and at what targets he wants the so-called sophisticated weapons systems aimed. Unless we unite the combat arms, we are persisting in an organization for battle which permits the enemy to split off our infantry from the rest of the mighy American arsenal.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Logistic Installations and lines of communications within the Field Army Area must be protected. But, how, when units are widely dispersed?
Tank Farm
W

Life Lines of Survival

Major DAVID D. FIELD

AS General Sherman turned his back on Atlanta and headed for the sea, he was not concerned about supply bases or lines of communication. His logistical support lay in *front* of his 60,000 and he knew they would be able to live off the land. This was probably the last time that a large U. S. force fought successfully in a major war without the huge rear echelon which has become so essential to our field armies.

During both World Wars and the Korean conflict, the mission of establishing and protecting our lines of communication became a major part of our war effort. It is doubtful that our armies could have succeeded as they did without the LOCs and the tons of supplies and equipment they carried. The final report of the Army Service Forces to the Secretary of War contains this significant statement: "The roles played by strategy and tactics, by military leadership, and by the man in combat are well known. Important and decisive as they were, they were completely dependent upon adequate logistical support." With an eye to the future, it added: "It is inescapable that logistics will play a predominant role in any future conflict. Provisions still must be made for the maintenance and comfort of the combat forces regardless of their mission, and regardless of how they are organized and deployed."

If our ground forces are to defeat the enemy, they must be properly supported. The wherewithal, placed in the logistical pipeline perhaps six or seven thousand miles away, must reach the eventual user. Field Marshal Montgomery has observed, "Today, when supply lines are cut by enemy action, armies cease to operate." Thus it becomes apparent that the most important segment of our lines of communications is that which extends from the rear boundary of the field army to the forward edge of the battle area. Once an article has reached the field army, it must complete the remainder of its journey in safety. This poses one of the many logistical problems facing us today: how can the LOCs within the field army be adequately protected?

DISPERSAL PRESENTS A PARADOX

To military planners the arrival of nuclear

weapons makes the question an urgent one. Much has been written on the subject, but it is doubtful that a complete solution has been reached. Regardless of the type of war we may fight in the future, everything we do will be influenced by the fact that the enemy too has nuclear weapons. Because of this, current doctrine has been developed which is based on the premise that battle areas will be vastly extended in both width and depth.

In these battle areas highly mobile forces will fight from widely dispersed key positions. Even if our field army has not been hit by nuclear strikes, both tactical troops and supporting elements must be dispersed so long as the threat of such an attack exists. It is paradoxical that the dispersal we must adopt for survival offers the enemy an opportunity to disrupt or destroy our lines of communication without using costly nuclear weapons. Through the skillful use of infiltration he will attempt to inflict maximum damage on our depots, supply points, airstrips, vehicles, railroads, bridges, POL pipelines, signal communications, and other targets essential to the support of combat troops.

In addition to such efforts by his own troops, the enemy will encourage sabotage by unfriendly civilians against our logistical efforts in the area of our LOC. Thus we see that our LOCs will be a potential target not only for nuclear attack, but also for the same means of destruction which were used to some extent during WW II and Korea. What we call conventional weapons, such as long-range artillery, nuclear-free rockets and missiles, naval gunfire and high explosives from fighter and bomber aircraft will also be used against certain logistical targets.

PILFERAGE AND THE BLACK MARKET

There are other threats to our LOCs in the field army's area. They are not as large in scope as those we must expect from the enemy, but our defense plans must consider them. Among these are actions by friendly civilians. In a war zone even honest people will pilfer. Criminal elements also will be active. Whether military supplies are stolen for personal use or for sale on the black market is not material here. The effect is the same. There is a leak in our supply system. A further threat, and an even more insidious one, is that some of our own troops may be involved. Finally, accidents will also disrupt our lines of communication for various periods. POL pipelines will break. Aircraft will crash. The careless handling of ammunition and vehicles may result in damage of major proportions. Innumerable unforeseen incidents will occur which will further deplete our precious resources.

In the face of all this, what can we do to assure the fighting man of maximum support? Current doctrine includes measures which should provide a high degree of protection from nuclear attack or convention weapons. For example, in the field army's area its stocks will not only be well dispersed; they will be relatively small. Multiple identical small, general-type depots and supply points will be established, with stocks balanced rather than specialized. Alternate routes and means of transportation (including cross-country vehicles) will be used. Delivery by air will be used to the limit. Mobility and night fighting will be stressed, and air-defense units will be available. The objective will be to maintain installations and routes which will not offer lucrative targets, particularly for nuclear weapons.

Many other ideas and concepts are being studied to increase our ability to survive logistically in future war. However, there are countless obstacles which limit our progress toward this goal. Further, we must remember that regardless of how much progress we make or how austere our supply system becomes, a tremendous number of articles measured in tons must each day enter the field's army's area. One writer thus summarizes the situation: "The success of the support commander on the atomic battlefield will depend on his ability to calculate his risks, to reduce his risks to acceptable proportions, and to continue his administrative support mission after attack."

WHO'S GOING TO DEFEND THE REAR?

From all this we can see that the field army's lines of communication may not be so vulnerable to nuclear strikes as would at first be supposed. There will be more profitable targets in the administrative zone (the old ComZ) and in the zone of the interior. The greatest danger to our support of the field army probably lies in actions which the enemy can take because of the nature of the nuclear battlefield, rather than in the nuclear weapons he possesses. In our army we teach that guerrillas will be an important factor in any conflict. We also teach that "guerrilla operations are conducted primarily against enemy lines of communication." Again a paradox.

Assuming that the enemy accepts the same doctrine, it may be that one of the primary missions of our field army will be to defend our LOCs against a form of warfare that has existed since earliest times. In spite of the fact that we might be reasonably successful in our defense against nuclear strikes, we may still lose large quantities of supplies and equipment through the action of small forces operating *on the ground.*

Two basic proposals have been offered as to how to cope with this problem. General Carter B. Magruder, former Deputy Chief of Staff for

Logistics, believes that while service units must be trained to defend their own installations, "a considerable commitment of combat troops to the protection of the lines of communication will be essential." On the other hand, Lieutenant General Paul D. Adams, CG of V Corps (Seventh Army), has said that combat troops cannot be spared for rear-area security except in an emergency.

If we accept the first premise, we will be reducing the number of troops facing the enemy. General Magruder feels this is necessary and is justified if we are to move forward the supplies so essential to our existence. If we accept the second, service troops will have to defend the areas of their own units and the LOCs. Theoretically, they might be able to do this, but remember that logistical support is their primary mission. Furthermore, they do not have the numbers required for this protection.

Perhaps a combination of both methods may be necessary. Reference material prepared by the Command and General Staff College says: "Service units must be prepared to fight in all directions. Overland convoys may have to fight their way to supported combat units. Combat troops may be required to provide protection against unconventional forces and enemy units that have penetrated into our rear areas and to hunt down and destroy these units." This same document admits that our current concepts do not meet the requirements of an effective system of rear-area security. From this we must conclude that we need a more definitive and workable system. Further, it seems inescapable that, regardless of which method we adopt, personnel will be required.

SEPARATE AND SPECIALIZED FORCES ARE NEEDED

I contend that neither combat troops nor service units should be primarily responsible for this mission. That we must organize and train separate forces for the specific task of protecting LOCs in the combat zone. No major change in our current organizational structure would be required. It seems logical to make these forces organic to the Military Police Corps. The missions of these units would be directly related to those already the responsibility of the MPC. Battalion-size units of highly trained specialists could be incorporated into the MP structure currently planned for the type field army. These battalions would be controlled by the military police groups. The number required in any given area would depend on many factors including the area's extent and nature, what we know of the enemy situation, and the type of war being fought.

Such units would have the mission of protecting the lines of communication from army rear boundary to designated points within a division's area. These troops should be completely mobile, be provided army aviation support as required, possess adequate firepower to include some armor, have an effective signal communication system and, above all, be composed of the highest type of soldiers.

The unit visualized is comparable to the Constabulary which was so useful in Europe after World War II. It would fight on a 24-hour basis, and its very existence might help deter the enemy to some extent. Care would have to be taken to dispel the notion that these are merely guard or escort units. While they would have such duties, they would also patrol areas between installations, aid in detecting and eliminating black market activities, assist in screening refugees and other civilians, and perform other tasks as required by conditions. These soldiers should be so trained and motivated that they would take pride in being members of an aggressive and highly skilled force engaged in a vital task. Their existence would not relieve service troops from contributing their efforts to area defense as they have in the past.

THE FIGHTING SOLDIER IS THE MOST IMPORTANT

The objection may be raised that the creation of such a force places a further drain on our already limited manpower. True, large numbers of soldiers would be required, but consider these factors:

- It is better to have trained specialists performing such a mission than to place the job in the hands of service troops whose other duties have priority.
- Combat units diverted to such duty would not be trained or motivated for this task. Combat units also should be used in their primary role.
- Above all, our lines of communication must be protected. We cannot afford to depend on makeshift, interim measures. The required number of trained troops must be available on a full-time basis, or we won't be able to support tactical operations.

The late General of the Army George C. Marshall, one of our great soldiers, observed: "The requirements of logistics are seldom understood. The burdens they impose on the responsible military authorities are rarely appreciated." Because of the technological and tactical progress we have made since 1945, our logistical problems have become more complex than ever before. We must increase our efforts to relieve the burdens being borne by the combat commander. One major step would be to develop the type of organization proposed, and thus assure the battle leader that his troops will get everything they need to accomplish their mission.

What's Happening to ROTC?

The focus is on the University of Wisconsin experience

Major DAVID M. PETERS and Captain ROBERT J. BERENS

THE Reserve Officers Training Corps program is in the throes of change. Branch material instruction to a General Military Science course has been in the works for some time. Civilian instructors are taking over some subjects; additional college credit is being offered and changes are made in curriculum.

But the big change is in the direction of voluntary ROTC.

WHY THE CHANGES?

Stimulus for change is coming from the colleges which have ROTC. Considerable agitation for change has been evident for several years, especially against compulsory training for freshmen and sophomores.

The heart of ROTC lies in the 68 land grant colleges. At 15 of these colleges compulsory versus voluntary ROTC is now being debated. The challenge comes from such campuses as Michigan State, California, Arizona State, University of Oklahoma, Ohio State, Hawaii, and the University of Wisconsin.

ROTC isn't all drill and grind, nor is their over emphasis on social functions on most campuses as this picture of pretty ROTC sponsors at the University of Puerto Rico and the picture on the next page might suggest

Proponents for change have been encouraged by the positions taken by the Department of Defense, the Navy and the Air Force. The Department of Defense has stated that compulsory ROTC is not essential. The Navy has the enticements of the Holloway Plan which finances the student through college. The Air Force supports the Department of Defense position.

The Army doesn't agree. It wants the compulsory feature retained. A few figures lend significance to the problem.

Two out of three Reguar Army second lieutenants in the combat arms today were commissioned from the ROTC which provides more officers than any other source. ROTC at more than 230 colleges and universities throughout the United States provides 14,000 junior officers each year for call to active duty.

ROTC AT THE UNIVERSITY OF WISCONSIN

The University of Wisconsin provides a case study of the kinds of arguments, pro and con, that are heard on this question on a land grant university campus. Few of the arguments are new for the history of ROTC has been erratic and stormy.

The Land Grant Act of 1862, known as the Morrill Act, offered tracts of federally controlled public lands, or scrip in lieu thereof, to each state which was to be devoted the "the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts."

In 1866, the Wisconsin Legislature passed a law which made military training mandatory at the University of Wisconsin. The actual courses

started in 1868 and it was noted in those early years that "drill is not popular with the students." This experience was possibly duplicated at many of the other land grant colleges.

The ROTC program as it is known today came into effect with the National Defense Act of 1916 which absorbed the land grant college military training programs into the ROTC system. The result was standardized training.

In 1923, after much student agitation, the Wisconsin Legislature passed a law which put ROTC at the University of Wisconsin on a voluntary basis.

In 1941, with World War II threatening, the Legislature changed the law making basic ROTC mandatory for all students in the first two underclass years. This law remained in effect until 1959 when compulsory ROTC again became a red-hot campus issue.

The State Legislature passed a law in 1959 making ROTC instruction optional for freshmen and sophomores at the discretion of the University of Wisconsin faculty and the Board of Regents.

In February, 1960, after faculty approval had been granted, the Board of Regents voted to make the ROTC program voluntary, on a trial basis, for the next two years starting in September. At a previous meeting in January the Regents had voted to continue compulsory ROTC (by virtue of a tie vote); however, a letter from Department of Defense to the President of the University was introduced at the February meeting which stated that compulsory ROTC was not necessary. This seemed to have been decisive with the Board of Regents.

The Regents stated they will again make ROTC

THE CASE FOR VOLUNTARY ROTC

(1) The basic two-year program doesn't warrant academic credit.

(2) Students frequently complain that the basic courses waste their time (three hours a week for freshmen) and lack challenge.

(3) With the present need for highly qualified officers, the most important role of ROTC is more likely to be the educating of career and long-service officers rather than great numbers of reserves. Hence, recruitment of high quality college men for the Advanced Course (junior and senior years) is more important to the military services than running large numbers of basic cadets through two years of compulsory training.

(4) The money saved by a non-compulsory first two years could be used for more vigorous recruiting and scholarships.

(5) Why should the Army seek to get non-volunteer officers from ROTC when it takes pride in the fact that its other sources of officers—USMA, OCS, and National Guard—are all volunteers? It is said that a volunteer generally makes a better soldier than a drafted man, so why spend resources on unwilling freshmen and sophomores?

THE CASE FOR COMPULSORY ROTC

(1) The nature of the next war cannot be predicted but whatever kind it is, if it comes, the Army and its reserve components will play a vital role. Organized, trained and disciplined forces will be needed. ROTC makes an important contribution to this manpower pool.

(2) It is the obligation of every citizen to serve at the level of responsibility for which he is qualified. Leaders in all fields are drawn predominantly from colleges—an indication that there is a high correlation between educational level and the ability to lead.

(3) Few men entering college have actual knowledge of the military profession and, as a consequence, ROTC would introduce them to military life. National defense is the responsibility of every citizen and military education is a vital element for the well-rounded education of future leaders in every field.

(4) The advanced ROTC cadets volunteer for the program, so the Army is getting willing people as officers.

(5) Basic course enrollees receive an orientation and indoctrination that many would not otherwise experience.

(6) Basic course enrollees provide the broad base from which potential leaders can be recruited in addition to providing the advanced course students an opportunity to improve their leadership experience.

The Queen of Northeastern University's annual Scabbard and Blade Military Ball is crowned

An ROTC instructor at Seton Hall University uses a mock-up to demonstrate to four students the workings of a caliber .30 machine gun

mandatory if the enrollment of third-year ROTC students falls below 75 per cent of the present number over the next two years.

CHANGES IN THE CURRICULUM

The Army, in the meantime, had announced a change in the curriculum as prescribed by the present Army Training Program (ATP).

Course changes will reduce time spent in individual and crew-served weapons training, and marksmanship. More time will be provided for academic subjects such as Effective Communications (speech and writing), American Military History, General Psychology, Science Comprehension, and Political Institutions. Some of the subjects, e.g., American Military History, will be taught by a civilian faculty member under the chairman of the appropriate university department, and will meet part of the university undergraduate requirements for a degree.

The specific program for the University of Wisconsin has been sent to Continental Army Command for approval. If approved, Wisconsin will change from Branch Material instruction to the General Military Science course.

Tactical training will be conducted during the summer camp for third-year military science cadets.

Total credit for the two years of advanced training was formerly eight credits with no credits given for the first two compulsory years (freshman and sophomore). It is proposed that overall credit for the four years under the voluntary program be 19 credits, which includes the courses applying against the University degree requirements.

Curriculum changes will be phased in over a two-year period starting in September, 1960, and promises to remove much of the criticism presently leveled at the ROTC subjects.

THE CONTROVERSY WILL CONTINUE

This article has focused on the situation at the University of Wisconsin because the writers are familiar with that situation. Solutions at other universities and colleges will depend on conditions on respective campuses. However, agitation for voluntary ROTC and other changes can be expected in the months to come.

The ROTC program is being attacked and defended. Its faults and its good points are being analyzed and emphasized. The new changes are calculated to improve the training of ROTC cadets. It may be that they will also reduce the opposition to ROTC in the colleges and give participating institutions a larger part in training leaders for the Army.

It should be added that in the give and take of campus debate on the subject of voluntary ROTC, participation by active duty Army officers has been limited. Usually they have been confined to making formal presentations at the request of decision-making groups, faculties, regents and such. This has at times made the open debate on some campuses as one-sided and impartial as a television commercial.

Certainy it is too early to forecast the ultimate effect of this debate. But it does seem certain that the Reserve Officer Training Corps program of the future will be quite different from what the thousands of officers commissioned through ROTC remember.

ARMY cerebrations

1965 Light Armored Howitzer Battery. *It must be able to move fast, find targets fast, fire fast*

Lt. JOHN S. CROSBY

Can you visualize a light armored artillery battery with an atomic capability, one whose organic target acquisition equipment can locate targets up to 15 miles in the enemy's rear, and be able to fire 10 miles in front of the battle positions? I can, and I think you can too.

By 1965 we shall need such a weapon. One that can fire HE at least 18,500 meters and atomic projectiles 16,000 meters. It should be able to travel 300 miles without refueling, on its own transport vehicle, have a low silhouette and weigh between 20,000 and 25,000 pounds. Also needed are radios smaller and more compact than current ones, with ranges up to 40 miles. Also we'll need battery survey information in 30 minutes or sooner, and obtain it with fewer people.

These and other pieces of equipment are needed for a modern, well-equipped direct support light armored battery. When I say light battery I don't necessarily mean 105mm; for purposes of discussion and for simplicity let's use the 105, although the caliber may go as high as 150mm.

Depending on terrain, armor probably will be the most decisive arm in future atomic or non-atomic battles. Armor has the mobility, the firepower and the crew protection that will be so essential in future conflicts. Tactical mobility of armor and infantry is vital in the dispersion required by the nuclear battlefield, and this necessarily applies to the artillery support organic to armor units. If they are to fulfill the artillery's direct support mission, our howitzer batteries must have greater range, longer-ranged communications, better target acquisition facilities, fast and accurate survey data, and other new and up-to-the-minute equipment.

During past conflicts, when a direct support battalion could not reach a target, or place the required volume of fire on it, it could request additional fire from other units in division or corps artillery.

In the dispersion of the future battlefield, this will be impossible in many instances. Division artillery will be unable either to mass its fires or build up a volume of fire to neutralize a large target, for the simple reason that it will be too dispersed. A direct support battalion probably will not even be able to mass its own fires. Our 105mm battery will be acting as the direct support unit for a tank or an armored infantry battalion, or combinations of the two.

We need a 105 that can attain ranges of 18,500 meters by using a different propellant or rocket-propelled warhead. If possible, it should have a low-yield atomic round. This would provide the firepower needed to neutalize a relatively large target. Atomic support from other units will not always be possible, and the target may disappear before the target information can be transmitted to another unit and the decision reached to fire the tactical-strategical weapon. We need instantly available nuclear rounds. With our current delivery systems, this would be much more expensive than a round delivered by a 105mm.

The self-propelled vehicle to transport this howitzer should weigh less than the current one, have a greater cruising range and a much lower silhouette. It needs an aluminum or other lightweight metal shell, capable of protecting the crew from some nuclear effects, shell fragments, and small-arms fire. It should be able to burn any fuel available—gasoline, diesel or kerosene. Because of the extended periods we may be away from supply facilities, it should have a cruising range of 250 to 300 miles. This would allow us to devote more effort toward supply of ammunition and other necessities we will mention later.

The new T195 being developed incorporates many of these ideas, but the weight needs to be reduced below the 31,300 pounds stated in the specifications. This may sound like a gunner's dream, but dream vehicle or not, we need it.

In any consideration of the combination of armor, dispersal and mobility, you must in essence think of communications. Presently we have FM radios with rated ranges of 5 to 15 miles. This is not enough. The forward observer section has an AN/PRC-9 with a range of five miles. It needs one with a range of 15 to 20 miles that very rapidly can be changed from one frequency to another.

Before they can be given to the FO, our current radios employing the RT-67 need to be made more compact through the use of transistors and printed circuits and other improvements, until they are about the size of an AN/PRC-9.

The forward observer always has been an excellent source of intelligence for commanders of all units. He should be equipped to do his job even better than before. A longer-range radio would help tremendously.

From battery to division artillery, commanders need a radio with a range of 35 to 40 miles. If division artillery is to control its battalions, and if the battalion is to control its batteries, we must have these radios. An armored unit of the future without radio communication—and therefore lacking combat intelligence—is a dead duck.

The artillery must have targets and know where they are. Since the arrival of nuclear weapons there has been much talk about target acquisition. The artillery needs a target acquisition platoon, either at division artillery or in battalions. This platoon should have drones that are capable of all-weather surveillance, that use radar, infrared, television, and photo equipment, and can penetrate 10 to 15 miles forward of battle positions. As the drone flies, it could be tracked and its information fed into computers so as to instantly fix the location of all targets it sights; then they can be attacked instantly.

In the target acquisition chain one important link is the artillery forward observer. A tremendous boost to his observation and target-gathering mission would be given by adding one or two small portable radar sets in the battery, to be used by its FO sections. A small set capable of giving the slant range and azimuth of a target 10,000 to 20,000 meters away could be of untold value. Information so gained could be used in the immediate attack of targets, to fulfill our own range capabilities at any time, day or night, and during all kinds of weather.

The method of providing survey in our artillery battery or battalion must be improved upon. With current methods, by the time survey is complete a battery of 1965 will be six miles up the road, and our survey data useless to all except the local road department. The tellurometer, a new electronic device which measures distance, is now being produced and will cut survey time by half. Add a manual computer designed for working survey problems, and survey time can be cut half again.

Another piece of new equipment adaptable to survey, now being tested by the Corps of Engineers, is the position and direction indicator. Place this instrument inside a vehicle and it can be located instantly. This battery of 1965 will also require air delivery of supplies by helicopter or other VTOL aircraft. It will need a weapon for defense against low-flying aircraft —something on the order of Redeye, the new surface-to-air shoulder-fired guided missile. Other gear might include the new family of wheeled vehicles being developed, and a lighter weight armored personnel carrier that has more power than the current APC.

We'll need computers in the fire direction center. Our current system is too slow. Many times the target has moved or been dispersed before we can effectively bring fire on it.

With all this—and some other things like improved medical aid and small arms for individual protection—artillery will be ready to do its job of supporting the ground-gaining troops with fire.

Who Misses Payday? *You can help the Class A officer find all your men.*

Lt. CHARLES D. SARKISS

Man, am I happy that payday doesn't come again until the last day of next month! Let's see, who hasn't been paid. Sergeant Jones from Recon Platoon is in the hospital. Specialist Four Smith from Assault Gun Platoon is at school. Allen from Medical Platoon is on duty at the dispensary. Private First Class Knox from Maintenance & Supply Platoon is doing emergency repair in the motor pool. Privates White and Coons are on leave.

It's the same old story month after month, particularly in headquarters companies. Poor Lieutenant Class A. Officer has to run his legs off and pull out what's left of his hair to find the men in his unit who haven't been paid. Granted, some of the men you seldom see during the month come out of the woodwork to get in the pay line. But there are always a few you have to look for.

What about some of the other things that go along with paying the troops? Soldiers' deposits, donations to charities, collections for the KPs and company tailor. Here's a soldier with a gripe about his pay, another with a question concerning his allotment deduction. Such things really slow down the class A officer's task.

Let's face it, payday is about the biggest "interest" your men have in any one month. Knowing what is happening to their pay and why is a big element in troop morale. Do you platoon leaders know how much your men make? Do you know whether they send any money home or whether they have an allotment in class B, E, N or Q? Did they get all the money to which they were entitled? Do you know how many dependents they have for tax exemptions? You should know all these things. Remember that old principle of leadership: "Know your men and look out for their welfare."

There is quite a bit of information on DA Form 2139 that can help you learn to know your men and look out for them. The Army's new pay system makes it easy. Everything concerning your men's pay is on the form. There are complete tables of pay and allowances on the back of the pink copy that the soldier gets.

By now you're saying: "All this is true. So what?" I'd like to propose a system of paying which is faster, easier and — most important of all — affords each platoon leader the opportunity to personally pay his men.

The class A officer gets all military pay vouchers (Form 2139) and the money from the finance distributing officer. When he returns to his unit he separates the forms into platoon stacks—both the white and

pink copies. (This can be done by the company clerk or the first sergeant.) Then each platoon leader takes his stack and figures how much money his men should draw and how many bills of each domination he will need. His computation completed, he turns it over to the class A officer who gives him the money in the proper denominations and takes a receipt for the amount of money and the number of forms. (Of course, Lieutenant Platoon Leader never forgets to count his money.)

Now the platoon leader goes to his CP and pays off his men. Lieutenant Class A. Officer can then pay his own platoon and company and staff headquarters and collect the white copies after the other platoons have been paid. Each platoon leader must see that his men properly sign the white copy.

But hold on! What about Sergeant Jones and the others who are not here? The platoon leader goes to the hospital, school, dispensary or wherever his men are and pays them. Why not? If he's any kind of a leader he visits them there, doesn't he? Lieutenant Platoon Leader can answer questions and encourage his men to make soldiers' deposits or donate to charity. This is also an advantage to Joe Private. He doesn't have to leave his job to wait four or five hours in the pay line. After the platoon leader has paid all his men and the Forms 2139 are signed, he can turn them in to the class A officer with all the collections he has made.

With this system, a headquarters company of approximately 300 men can be paid in an hour and a half, a rifle company in an hour. The class A officer's work is cut considerably. The men are paid faster and their questions are answered by their own platoon leaders. Most important, the platoon leader maintains closer contact with his men when he pays them each month instead of every five or six when his turn at class A officer rolls around.

My company has eliminated the worst of our payday complaints, has had 100 per cent participation in purchases of savings bonds for nine months and in soldiers' deposits for seven. These personal savings average more than $30 each month.

There it is, and it really works. Try it!

Fatigues Are Not for Dress! *Why insist on spit-and-polish clothing soldiers work and fight in?*

A/2C ROBERT F. DORR

Although an airman, I have had the experience of serving at several Army posts. One aspect of life among my Army comrades that I can't understand is the wearing of the fatigue uniform. I have spent many a hapless hour trying to prepare my cardboardish, sagegreen work uniform to stand an inspection next to soldiers wearing olive drab fatigue. During a recent tour at a post where spit-and-polish is the order of every day, I became convinced that the Army has forgotten the purpose of the fatigue uniform. The Air Force is equally forgetful.

On Army posts I have seen in Korea and in the States, the average soldier in fatigues is neat and spotless. Sometimes his trousers are bloused into glistening, spit-shined boots; he wears significant decorations like the Combat Infantryman Badge, jump wings or unit crests; his belt buckle sparkles like a mirror; his trousers and shirt are neatly starched and pressed and he sports a square, blocked cap. This typical GI of today (we are still called GIs in the Orient) looks like he stepped off a recruiting poster.

The unfortunate fact is that while nearly all unit commanders insist on a neat appearance, the fatigue uniform was never intended for inspection wear. In less than half a century we have forgotten that American armies of old never had dress uniforms and were never strict about wearing of clothing made for both work and combat. The times we live in have made it desirable that even the lowliest recruit have a dress uniform, and so today we have Army Green and Air Force Blue. Both are dress uniforms and should be regarded as such, especially since they are the only military clothing usually worn off post. As it would be absurd to wear the AG-34 dress in a foxhole, it is equally ridiculous to expect the work and combat uniform—fatigues—to be the height of neatness.

I have been told the Marine Corps is less strict about the appearance of the fatigue uniform. The Corps seems to realize that clothing meant for wear during combat training, while repairing greasy equipment or pulling KP, is nothing but work garb and should not serve any other purpose.

Most unit commanders insist that fatigue uniforms be neatly starched. Yet frequent starching, while accomplishing nothing practical, wears out fatigues that would last twice as long if they were simply pressed. The set I was issued wore out in less than two years from frequent starching.

Patches and unit crests on fatigues are unnecessary. Since the clothing is not worn off post anyway, I see little reason for such unit identification. Certainly anyone who has earned badges or wings should be allowed to wear them with any uniform, but why bother sewing chevrons on fatigues when we could follow the Navy's example and have insignia of rank stenciled on?

Least understandable to me is the reason why nearly all unit commanders insist that the blocked cap be worn with fatigues. The design of this cap serves no practical purpose, and I have found it less comfortable than the standard job. To say nothing of the fact that blocked caps are not issued and each soldier must purchase his own in order to comply with local policies.

I believe we should put more emphasis on job skills and combat readiness, and less on the neatness

of fatigue clothing. Let fatigues be practical garments that are designed for comfort, and if climate and conditions allow, let's wear them with only a T-shirt or with the shirt untucked.

The American soldier shouldn't be sloppy. But there is a distinction between clothing designed for work or combat, and for dress. We should always be neat and presentable, no matter what we wear, but let's stop trying to make the fatigue uniform into something it is not. It's a good uniform and has served well in the past. Let's use it properly and profitably.

How Do You Know Your Outfit Is Well Trained? *Get out in the field and watch it yourself.*

Capt. JAMES M. HANSON

How many of us have heard these comments about our squad, our platoon, our company: "Jones, your outfit did poorly during its ATT. Just look at your score! Read these umpire comments." It's an old refrain, but is it justified in each instance?

You listen to these remarks and then hark back to your Army Training Test. What happened? Where did you go wrong? You trained your men well and were sure you could do a good job on the ATT.

True, you *had* trained your unit well. Your outfit had experienced officers and noncommissioned officers who knew their jobs and were dedicated men. All had done a fine job on the test. What, then, had caused your relatively low score?

I believe that to get at the root of the trouble we should briefly examine the umpire system. Two systems appear to be most used, neither of them entirely satisfactory.

In one, the ranks of the umpires are commensurate with their rating assignment. However, since usually we can't spare everyone to test all units, each outfit is tested by a different set of umpires. Obviously, scores cannot be compared any more than we can compare apples with oranges.

In the other system for selecting umpires, we attempt to use the same people to judge all units. When units are levied for umpire officers, however, we find that those with suitable rank cannot be spared in the numbers required. So we substitute second lieutenants for captains as company umpires. First lieutenants or captains with no staff experience find themselves umpiring staff officers. As a result, the officer umpires try their best, but the validity of their comments becomes questionable.

The ideal, of course, would be to have all officers qualified to umpire, and utilize the same ones to test *all* units. This will rarely, if ever, be possible.

What to do? The umpire personnel problem plagues us. Units must be tested; to be rated they must be umpired.

The heart of the problem lies in the fact that commanders of the subordinate units being umpired have come to rely on comments by umpires, comparisons of scores, and even judging a unit's entire performance and state of training on its ATT score, or on the comments of unqualified umpires.

There is only one way in which a commander can know and judge his subordinate units. He must get out into the field during the test and watch them himself. Further, the commander of a unit must observe its training prior to the tests. Just as a company commander must go out with his squads and platoons, so the division commander must get out with his battle groups and other units. Time? A problem to be sure, but even a battle group's ATT takes only a few days. Surely a commander can find 15 to 20 days a year to spend with them. Especially so when battle readiness is the most important among all the things with which a commander must be concerned.

Commanders, take another look at your units. Have you placed too much importance on comparisons of ATT scores? Perhaps a re-reading of his comments after you know the umpire will cast a different light on them. Examine your Master Training Program, get out to see representative training, influence the training of your units—and then live through their annual ATTs with them. Then you will know whether or not your units are well trained.

The High Cost of Black Boxes. *Electronics are expensive but what price tag would you put on stagnation of communications?*

Col. CHARLES W. GIBBS

A problem that bedevils military planners as they go about the daily job of modernizing our fighting tools is the high price tag on military electronics.

Many planners are engaged in work that is current or "near-range." That is, they merely seek to up-date existing equipment that will cancel out the obsolescence which has built up since World II or Korea.

Others are engaged in "mid-range" planning which seeks to modernize obsolete equipment *beyond* today's standards to four to six years since. Some engineers refer to this projection as being "even with the state of the art."

A third class, fewer in number but no less tormented by this troublesome question, are the "long-range" planners. To borrow from beatnik parlance, "These guys are way out!"

It makes little difference to which of the three classes a planner belongs, or whether he is concerned with modernizing doctrine, tactics, strategy, organization, management, communications, weapons systems, or articles of equipment. And it matters not at what level he does his planning. In planning at *any* level the sticky question is: do we stick with Black Box A or really push for Black Box B?

The military planners are not the only ones troubled by this question. Within the military establishment those concerned with handling fiscal matters frequently are asked: "Why does electronic equipment cost so much more today than it did say 10 or 15 years ago?" The answer most often given by those well versed in such matters is "inflation."

Frequently those concerned with procurement of military hardware that relies on electronic devices are staggered by the price tag hung on it by industry. So they ask of industry: "Why is the cost of electronics increasing at such a high rate?" This time the answer is double-barreled: "Inflation *and* increased complexity!" Often industry adds comments about scarcity of materials and the fact that highly skilled technicians are quite expensive to come by these days. Sophistication is another word used quite frequently by the more eloquent.

Most frequently the people concerned with the original design and development of military electronics gear have the question put to them in phraseology something like this: "Why do you *design* the little black boxes to cost so much? Don't you know that we have inflation and too much complexity already?"

The answer from a design engineer (who knows full well that we have plenty of both inflation and complexity, because he works in and with industry daily) would probably explain that the military electronics gear in those black boxes must be highly reliable even under extremely brutal tolerances as to small size and light weight. High dependability of operation is vital. All circuits must work when called on to do so, even under terrific stresses of perhaps several Gs acceleration tugging at each part. Even when the whole assembly is being pounded by vibration, or frozen and heated alternately, or finally dunked, its characteristics must remain stable. Buy why, you insist, does a black box of electronic parts that measures a foot on each side cost so much more today than the same thing did 10 to 15 years ago?

Usually the answer is that miniaturization and things like printed circuits and module construction have made it possible to jam hundreds of circuits into the space occupied by two or three only 10 or 15 years ago. Nowadays we put thousands of electronic parts into a cubic foot of space and the box is much lighter than when it accommodated only a few parts.

The transistor typifies the hundreds of parts of a whole area of the electronics art, which is so new that it raised no problem only 10 short years ago. In the rest of this discussion we shall use the transistor to illustrate our points.

Many circuit functions which in the past either could not be performed at all or had to be adjusted manually are now done automatically in the box "untouched by human hands."

All the answers containing such words as inflation, complexity, reliability, miniaturization, and sophistication, represent progress in one degree or another. And progress is an expensive business.

I can hear loud and heated disagreement on what inflation has to do with progress. Some say it increases costs but that isn't bad because it accelerates growth of the economy—hence progress. Others are equally certain that it is progress in the wrong direction, since fewer of these expensive black boxes can be bought for x dollars.

So it goes. None of these answers seems as direct and as completely responsive as it should be to the multi-billion-dollar question.

It may seem quite obvious that all these different replies are a partial answer to a very complex question. It also seems obvious that each answer is true and forthright. If my assumptions are correct, then by simple logic the sum of all these responses should add up to equal the answer to the original question.

That the simple logic and equally simple arithmetic do *not* provide the answer is also obvious from the howls of anguish about the high cost of electronics emanating from those who have examined the budget. They see the pitifully small array of electronic equipment it will buy, and mentally calculate what a helluva pile of beans, bullets, or bananas could be purchased with the same amount of dough.

The volume in the howls of anguish, whether from those with the largest or the smallest share of the budget, is indistinguishable. Regardless of their place in the budget picture, that stubborn ratio of dollars to electronics equipment pinches all in direct proportion.

The fellow who needs that large truck or that plane rightfully, quickly and loudly points out to the planner that a few little black boxes which just sit there and make no noise cost more than his truck or plane. Besides, those boxes are filled with gadgets which he personally would never miss anyway.

Try to answer this simple question—stripping your response of all technical gobbledegook. Why is electronic equipment today so all-fired expensive?

The plight of the planner is thus untenable. The position of the civilian electronics industry is none too comfortable either!

If our crystal ball were not so clouded! If only we had Aladdin's lamp just long enough to summon an all-wise genie who could answer in simple lay terms without technical overtones which tend to confuse!

Aladdin was fortunate in having an inexpensive genie, even if he did summon it by magic. Magic! That what today's electronics genie is. *That's* why it's so expensive!

Nope, that won't do. Neither Congress nor any of the troops will buy that one. Everyone wants a better answer than magic. Our electronic genie has attributes which border on magic even beyond Aladdin's wildest dreams. With this electronic capability, our armed services have a total force which in effect reduces to insignificance the comparative numerical superiority of the enemy's masses of men. Is this not

precisely what Aladdin's genie could do? Quite probably, if Congress and the American people would accept fables instead of answers.

Everyone in this picture is interested in modernizing our armed forces to the point where they would have the greatest possible deterrent capability. All of them have an overriding interest in achieving this over-all capability in a balanced proportion of firepower, manpower, and combat power. That balance must be achieved without economic distress to our country.

In the total equation our enemies are strong in the manpower and firepower factors. In the combat power field our electronic genie may tip the balance in our favor. If we can't outnumber the enemy, and if we are unable to outshoot him, perhaps we can outdo him in a field where we are superior.

Within the past decade the field of electronics has progressed at a phenomenal pace. This progress has been and still is terrifically expensive. Is it worth the expense? Only the future can tell. The electronic genie could prove to be either a luxury or a necessity, or part of each.

Is the progress so far achieved in this field sufficient? We are probably way out in front, largely because of all those expensive black boxes we have bought.

Since all military planners, the electronics industry, the design engineers, the users, the comptrollers, the legislators and the people of the United States are taxpayers and are not unmindful of all these factors, here are some facts which will add up to an answer satisfactory to all.

(1) From about the time that radio was invented until after 1945, all electronic equipment used vacuum tubes.

(2) Ordinary types of vacuum tubes sold for as little as 75 cents apiece in 1945.

(3) Electronics progress was such that by the end of the fighting in Korea it was possible in radio-type circuitry for transistors to replace vacuum tubes at great savings in space, weight, and battery drain.

(4) Transistors (and companion circuit components) were (and still are) as expensive as vacuum tubes had been when in *their* infancy. Only six years ago the transistors we use today sold for about $25 each. Some types cost that much today, but as production increases they are getting cheaper.

(5) Today condensers designed to go with old-type vacuum tubes cost 25 cents each.

(6) Some of the newly invented capacitors (a fancy name for sophisticated condensers) designed for missile and space applications sell for $45 each. Prices will lower as mass production becames possible.

(7) For the past 15 years researchers, developers, design engineers and others have been working with materials (in the transistor field as well as in others) with which man had never worked before. There were no tools, therefore, to handle some of the materials. They had to be designed and built. Transistors and companion parts didn't always work when they were built with freshly designed tools. To find out why, engineers had to design and build test equipment. Each step was tremendously expensive, because all along the way they labored on the frontiers of human knowledge. Each day the gap between human knowledge and ignorance of the undiscovered is being closed a little. This costs money but it makes the next step possible.

(8) With today's automation one man, by the flick of a lever, can actuate automatic black boxes which will send a missile thundering into the skies and later guide its payload unerringly to the target. Many of the electronic circuits which make that possible have been invented from scratch since the end of hostilities in Korea. They use thousands of transistors at $25 and up each.

(9) Size and weight reductions are now possible and mechanical ruggedness achievable with a package of new micromodule wafers no larger than a stick of chewing gum. They work better and perform more electronic functions than was formerly possible in a black box measuring one foot square using vacuum tube type equipment. These have not yet been used in new equipment. They are too expensive if made by hand. Will they be expensive in initial mass production? Certainly!

(10) The transistor and many similar "solid state" devices are producing an impact on electronics equal to the impact of pencillin on medical science. Both are expensive when figured in dollars per pound. Both represent recent breakthroughs in the ability of our nation to survive. Both must be exploited if we are to maintain a satisfactory rate of progress. Progress is mighty expensive in brand new fields of knowledge.

Now if our planners care to add these ten facts to the others they already know, the sum total of all may add up to a more straightforward answer.

A hypothetical balance sheet might look something like the one in the adjoining box.

ANALYSIS OF COST IMPACT ON MILITARY ELECTRONICS

Based on tubes against transistors in black box

TUBES		TRANSISTORS	
Vacuum tubes, obsolete or inadequate for circuit functions to be performed.		Transistors which are adequate for circuit functions to be performed and can perform new functions with almost no power.	
Today's average price	$ 4.00	*Price, each*	$ 25.00
Number which can be accommodated with circuitry in a cubic-foot black box: 6		Number which can be accommodated with circuitry in a cubic-foot black box: 50	
Cost of 6 tubes	$24.00	*Cost of 50 transistors*	$1,250.00

Relative increased cost of new black box over old:

New	$1250.00
Old	24.00
	$1226.00

Cost of progress from old to new

Cost of indecision as to whether we should continue to progress: $ Inestimable

By utilizing the talents behind the doors to the modern Mathematics Research Center, the Army is making sure that the mathematical ingredients for any future military operations will be on hand for ready application.

MATHEMATICIANS TO THE ARMY

The constant search for more knowledge rests largely on mathematical theory

Two of AMRC's permanent staff members, Dr. H. Melvin Lieberstein (*left*) and Dr. Louis Melville Milne-Thomson (*center*), talk over the Center's work with visiting Professor Calvin H. Wilcox of the California Institute of Technology.

Major WILLIAM R. STROUD

NOT all important defense research goes on behind barred doors. A visit to the U.S. Army Mathematics Research Center on the University of Wisconsin campus contradicts that popular notion. Important basic research is under way at AMRC. Yet, if another war occurred, a tall fence would surround the building, with armed guards at every entry.

But today's peacetime search for knowledge is no less serious than wartime efforts. Most Americans know that the Russians excel in some scientific endeavors. To a very great extent, much of the Soviet lead represents a real ability in applying knowledge from basic research.

Many persons are puzzled by the term mathematical research. Mathematics theory underlies many other sciences and, therefore, there is a high degree of interest in basic mathematical research. The mission of the U.S. Army Mathematics Research Center is to advise on mathematical problems that are important to the Army and which may pave the way to progress in the future.

The Center began as a result of serious thinking by U.S. Army leaders after World War II. Before 1940 America had depended largely upon Europe for its basic research. Most scientific discovery is the result of a long process of study to which many people of many nationalities contribute. But while no country can be self-sufficient in its scientific research, neither can America be without its own basic research.

INTERNATIONAL COMPETITION

Mathematical research is an international competition. Russia, Germany, Britain and Japan have some of the world's leading mathematicians. Many Americans and foreigners have worked together in the Mathematics Research Center in Madison. Some staff members are permanent residents. Others work in the Center as visitors while on leave of absence from their institutions here and abroad. Since 1957 scientists from Argentina, Britain, India, Ireland, Italy, the Netherlands and Switzerland have worked in the Army's Center. Some of the staff are members of the University of Wisconsin faculty.

The Center's scientific findings are reported in the scholarly journals. Some 125 studies have been completed in Madison. These reports are exchanged with other research centers and institutions in the United States and overseas. So far, scientists in the Soviet Union have failed to ask for any reports. However, information can be gleaned from the scientific journals in which they have appeared.

It may seem imprudent to publicize the findings

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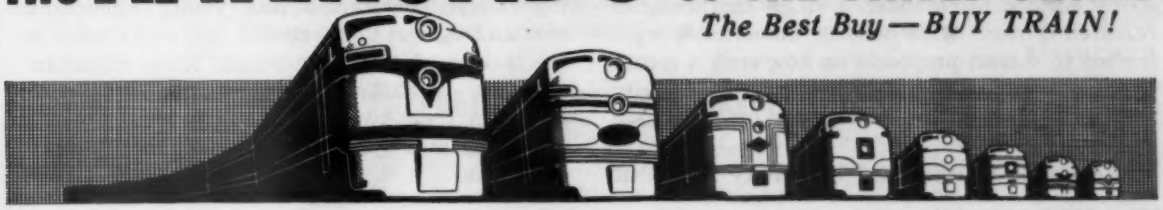


of AMRC. But basic research is valueless unless it is available to those who can use it. Usually the SECRET label applies only to the use of the basic findings but not to the original knowledge itself.

Neither the U.S. Air Force nor the U.S. Navy has a similar mathematics project and both benefit from research at AMRC, though the Army pays the bill.

The value of this mathematics research to the military services may not be immediately clear. At first look, some technical reports seem unrelated to combat. Yet, in day-to-day operations in peace and war, the Army depends upon mathematics as a necessary tool. Weapons design, maps, communications, transportation, supply—all lean heavily on the use of numbers.

AMRC HAS TWO MISSIONS

The purpose of the Center is really twofold. First, its staff advises and consults with mathematicians at other Army installations. Officers and men from laboratories and proving grounds come to Madison to discuss their problems. In turn, some staff members visit such places as Los Alamos, Oak Ridge, White Sands and Cape Canaveral.

Some of the mathematical theories the staff develops relate to fluid flow for rockets and airplanes, satellite motion, elasticity and plasticity of shells and other surfaces, and electrical waves and wave guides.

As in all basic research, immediate application is not the aim. Yet, the past has shown a large chance of their future use. Through the Center as well as through contracts with civilian mathematicians, the Army is guaranteeing that the mathematical ingredients for future military operations will be on hand.

The sponsorship of basic research by the Army is not new. For years much research has been carried on through the Office of Ordnance Research. Many tasks have been farmed out to universities or private commercial institutions by contract through various Army branches, arsenals and research laboratories. But the Army found that seeking civilian help was not always simple. Sometimes the Army didn't even know who the real experts were. Consequently, it needed advice on where to seek advice.

WHERE TO GET ADVICE

To fill this gap in the research program, the Army decided to establish a single mathematics research center. Many leading universities were invited to submit proposals on how such a center might be established and conducted. From many proposals, that of the University of Wisconsin was chosen.

A contract between the University Board of Regents and the Department of the Army established the Center in January 1957. The contract is for five years and is extended each year to that length. In this way, the Center ensures continuity in research and avoids the ups and downs of annual military budgets.

Before being appointed as director, Dr. Rudolph E. Langer had been a professor in the university's mathematics department. Other members have been drawn to the Center during its short life. The research staff is unique—it changes constantly.

The Research Center was built to provide space for about 40 mathematicians. They need little physical equipment; their needs are modest. Their greatest need is a quiet place to think with a desk and chair, paper and pencil, and uninterrupted time. The Center includes small offices, a library, a conference room, a secretarial staff, and soon it will add an electronic computer.

Naturally, the entire facilities of the University contribute to the Center's effectiveness. In its first two years of life, it occupied temporary quarters on the edge of the campus. Last April it moved into a new building given to the University by the Wisconsin Alumni Research Foundation.

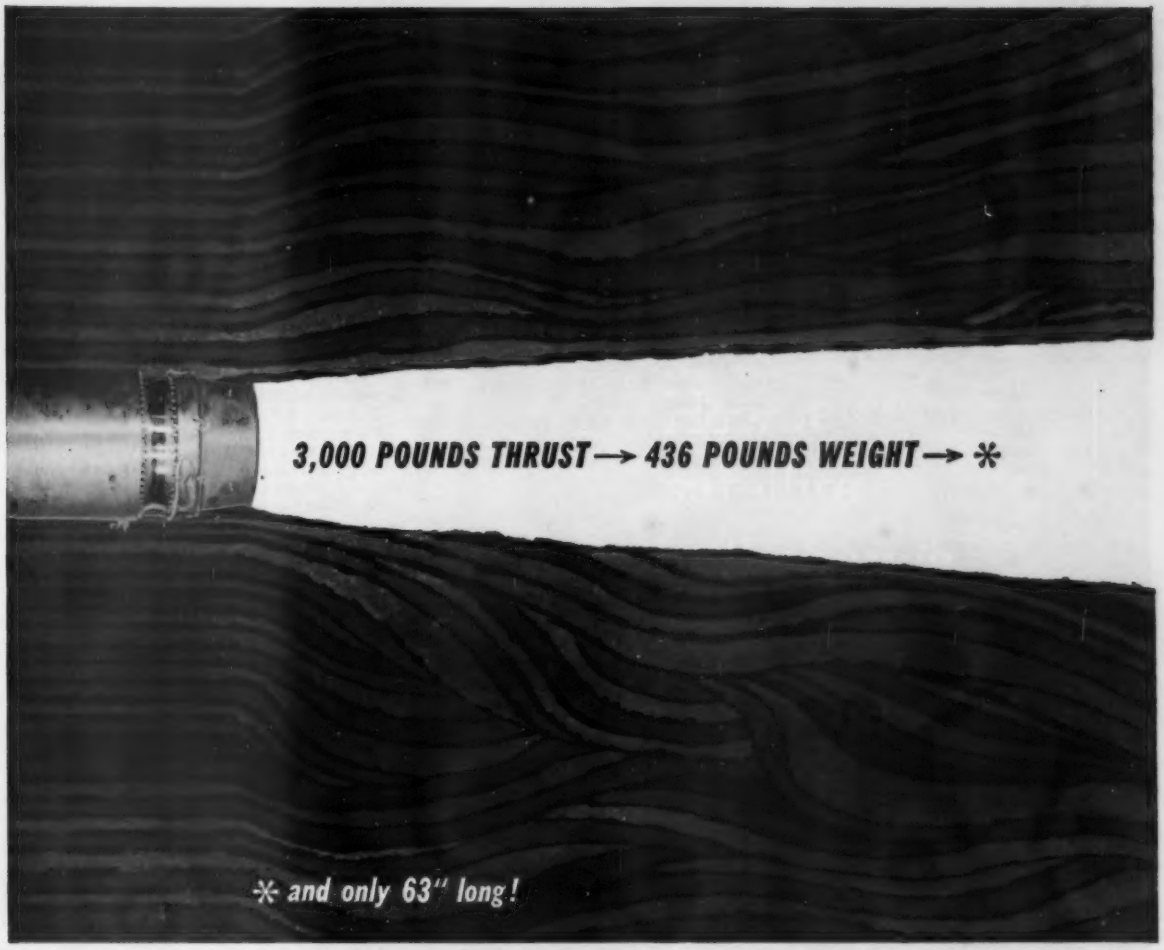
HOW MEASURE ITS WORTH?

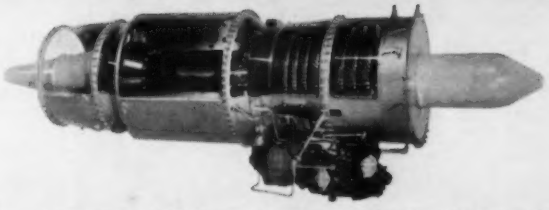
Actually, the Center is still in its childhood. Thus far, it has been operating at only about half of its planned budget. When the electronic computer is added, costs will total about a million dollars a year. The computer will cost about a third of that amount. But that instrument will make feasible some extremely complicated and extensive mathematical calculations which modern science requires.

The value of the more than one hundred studies, several books, professional articles and scientific conferences which have already come from the U.S. Army Mathematics Research Center is not measurable. Only the future can assess the worth of the venture.

Aside from these contributions to basic knowledge, the visiting members gain an insight into military problems. In the event of accelerated research in some future emergency, a long orientation time would not be necessary to bring these scientists up to the minute.

The very word "mathematics" seems to frighten too many people, Dr. Langer has said. The Madison mathematicians even have had difficulty finding enough secretaries. But young Americans, men and women alike, should find a challenge in the task of whittling ignorance. Many important scientific breakthroughs are made by young people in their twenties. America's future may well be charted by the formulas of today's mathematicians.





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1960 REUNION CALENDAR

As in former years, ARMY *is publishing the 1960 calendar of reunions and conventions of divisions and higher commands. We endeavor to keep this list current and accurate but cannot be held responsible for omissions or errors. Nor can we provide further information.*

MAY

Americal Div. 7 May. Victory Road Armory, Dorchester, Mass. Write Alex Mitchell, 20 Rochelle St., Worcester, Mass.

82d Div. (WWI). 15 May. Dempsey Hotel, Macon, Ga. Write James F. Brown, Jr., 1005 Bankers Insurance Bldg., Macon, Ga.

103d Inf. Div. 20-22 May. Elmwood Hotel, Waterville, Maine. Write Walter M. Jones, 47 Curtis Ave., Somerville 44, Mass.

JUNE

1st Cav. Div. 24-26 June. Statler-Hilton Hotel, Washington, D. C. Write Col. Edmund P. Stone, PO Box 201, Pomona, Calif.

4th Armd. Div. 23-25 June. Penn-Sheraton Hotel, Pittsburgh, Pa. Write Anthony J. Passanante, 148 Canterbury Ave., North Arlington, N. J.

26th Inf. Div. 23-25 June. Rockingham Hotel, Portsmouth, N. H. Write Angelo J. Mantenuto, 220 Huntington Ave., Boston, Mass.

33d Inf. Div. 17-18 June. Midland Hotel, Chicago, Ill. Write William Engel, 79 W. Madison St., Chicago 2, Ill.

JULY

2d Armd. Div. Indefinite. Benjamin Franklin Hotel, Philadelphia, Penna. Write Col. R. F. Perry, Box 172, Alexandria, Va.

2d Inf. Div. 21-23 July. Ralston Hotel, Columbus, Ga. Write Harry L. Dunne, PO Box 1155, Grayson St. Sta., San Antonio, Texas.

3d Armd. Div. 28-30 July. Netherland-Hilton Hotel, Cincinnati, Ohio. Write Paul W. Corrigan, 38 Exchange St., Lynn, Mass.

3d Inf. Div. 14-16 July. Cleveland Hotel, Cleveland, Ohio. Write Robert P. Waters, 1129 Warner Bldg., Washington 4, D. C.

8th Armd. Div. 1-3 July. Sheraton Hotel, Louisville, Ky. Write Henry B. Rothenberg, 134 N. LaSalle St., Chicago 2, Ill.

9th Inf. Div. 28-30 July. Shoreham Hotel, Washington, D. C. Write Daniel Quinn, 412 Gregory Ave., Weehawken, N. J.

25th Inf. Div. 22-24 July. Ambassador Hotel, Atlantic City, N. J. Write Maj. Paul M. Ireland, Jr., PO Box 101, Arlington, Va.

30th Inf. Div. 6-8 July. Roosevelt Hotel, New York, N. Y. Write Maj. Saul Selow, 42 Parkway Drive, Hicksville, N. Y.

41st Inf. Div. 22-24 July. Bozeman, Mont. Write S. B. Huntting, 526 NW Broadway, Portland 9, Ore.

42d Inf. Div. 11-14 July. Admiral Semmes Hotel, Mobile, Ala. Write R. Allen Gibbons, PO Box 342, Roanoke 3, Va.

63d Inf. Div. 29-31 July. Statler-Hilton Hotel, New York, N. Y. Write Edward G. Witt, 10344 Loma Circle, Grosse Ile, Mich.

82d Abn. Div. 4-6 July. Deauville Hotel, Miami Beach, Fla. Write Carl L. Davis, 159 Gibson Ave., Mansfield, Ohio.

88th Inf. Div. 13-17 July. Sheraton-Cadillac Hotel, Detroit, Mich. Write Charles L. Williams, 1100 Majestic Bldg., Detroit 26, Mich.

94th Inf. Div. 14-17 July. Sherman Hotel, Chicago, Ill. Write A. E. Rodriquez, 1417 Addison St., Chicago 13, Ill.

99th Inf. Div. 8-10 July. Biltmore-Hilton Hotel, Dayton, Ohio. Write John E. Cummings, 3218 W. Cary St., Richmond, Va.

102d Inf. Div. 29-31 July. Statler-Hilton Hotel, Washington, D. C. Write Walter E. Brown, Jr., 313 County Center Road, White Plains, N. Y.

106th Inf. Div. 22-23 July. Hotel Oglethorpe, Savannah, Ga. Write Richard DeHeer, 19 Hopkins St., Hillsdale, N. J.

AUGUST

1st Armd. Div. 26-27 Aug. Sheraton-Park Hotel, Washington, D. C. Write Col. Leo B. Conner, 1529 18 St., N.W., Washington 6, D. C.

1st Inf. Div. 18-21 Aug. Congress Hotel, Chicago, Ill. Write Arthur L. Chaitt, 5 Montgomery Ave., Philadelphia 18, Penna.

4th Inf. Div. 4-6 Aug. Shoreham Hotel, Washington, D. C. Write Iz Goldstein, 1276 E. 54 St., Brooklyn, N. Y.

5th Armd. Div. 11-13 Aug. Sheraton-Jefferson Hotel, St. Louis, Mo. Write Mrs. Claire E. Watrous, 8549 Lowell St., St. Louis 15, Mo.

6th Inf. Div. 4-6 Aug. St. Paul, Minn. Write James E. Wittstruck, 4201 B St., Lincoln 10, Neb.

7th Armd. Div. 19-21 Aug. Jung Hotel, New Orleans, La. Write Johnnie Walker, 375 Valley Road, Haworth, N. J.

11th Armd. Div. 18-20 Aug. Roosevelt Hotel, New York, N. Y. Write Ray S. Buch, 159 Leigh St., Clinton, N. J.

12th Armd. Div. 4-6 Aug. Barringer Hotel, Charlotte, N. C. Write Lawrence E. Mintz, 20020 Snowden Ave., Detroit 35, Mich.

16th Armd. Div. 12-14 Aug. Benjamin Franklin Hotel, Philadelphia, Pa. Write Lester Bennett, 5820 Recamper Drive, Toledo 13, Ohio.

24th Inf. Div. 12-14 Aug. Ambassador Hotel, Atlantic City, N. J. Write Edmund F. Henry, 21 Park St., Attleboro, Mass.

31st Inf. Div. 18-21 Aug. Morrison Hotel, Chicago, Ill. Write William F. Bedow, Sr., 3012 W. Belmont Ave., Chicago 18, Ill.

76th Inf. Div. Indefinite. Baltimore and Fort Meade, Md. Write Maj. Gen. Henry C. Evans, 6 S. Calvert St., Baltimore 2, Md.

78th Inf. Div. Indefinite. Fort Dix, N. J. Write John E. Ghegan, 975 52 St., Brooklyn 9, N. Y.

83d Inf. Div. Indefinite. Boston, Mass. Write George Cooley, 1459 Beachwood St. NW, Warren, Ohio.

84th Inf. Div. 22-24 Aug. Statler-Hilton Hotel, Buffalo, N. Y. Write Lee C. Allen, PO Box 141, Canton, Ohio.

101st Abn. Div. 12-13 Aug. Statler-Hilton Hotel, Detroit, Mich. Write Col. Leo B. Conner, 1529 18 St., N. W., Washington 6, D. C.

First Special Service Force. 12-13 Aug. Menrose Hotel, Detroit, Mich. Write Eugene V. McCormick, 1901 S. Fourth St., Lafayette, Ind.

CBI Veterans Assn. 3-6 Aug. Roosevelt Hotel, Cedar Rapids, Iowa. Write Eugene R. Brauer, PO Box 1848, Milwaukee 1, Wis.

Persian Gulf Command Vets. 13-14 Aug. Fitzsimons Army Club, Denver, Colo. Write C. T. Perkins, 11 E. Fifth St., Tempe, Ariz.

SEPTEMBER

6th Armd. Div. 1-4 Sep. Hilton Hotel, Pittsburgh, Pa. Write Edward F. Reed, PO Box 492, Louisville 1, Ky.

5th Inf. Div. 3-5 Sep. Milwaukee, Wis. Write Charles P. DeRose, 45 Catskill Ave., Yonkers 4, N. Y.

10th Armd. Div. 3-5 Sep. Detroit, Mich. Write J. Edwin Grace, 108 Langdon Ave., Watertown 72, Mass.

32nd Inf. Div. 3-5 Sep. Occidental Hotel, Muskegon, Mich. Write Joseph A. Hrdlick, 1519 N. 50th Place, Milwaukee, Wis.

37th Inf. Div. 3-5 Sep. Mayflower Hotel, Akron, Ohio. Write Jack R. McGuire, Room 1101, 21 W. Broad St., Columbus 15, Ohio.

27th Inf. Div. 16-17 Sep. Marcy Hotel, Lake Placid, N. Y. Write Lawrence Reagan, PO Box 1403, Albany 1, N. Y.

29th Inf. Div. 2-5 Sep. Benjamin Franklin Hotel, Philadelphia, Pa. Write Kalmon E. Marmer, 624 Mississippi Ave., Silver Spring, Md.

34th Inf. Div. 9-11 Sep. Savery Hotel, Des Moines, Iowa. Write Lt. Col. Junior F. Miller, Red Horse Armory, Des Moines, Iowa.

35th Inf. Div. 16-18 Sep. Statler-Hilton Hotel, St. Louis, Mo. Write Brig. Gen. Mahlon S. Weed, PO Box 1001, Kansas City, Mo.

36th Inf. Div. 2-4 Sep. Gunter Hotel, San Antonio, Tex. Write Harold D. Loftus, PO Box 5068, West Austin Sta., Austin, Tex.

43rd Inf. Div. 9-11 Sep. Vermont. Write Col. Joseph E. Zimmer, State Armory, Hartford 15, Conn.

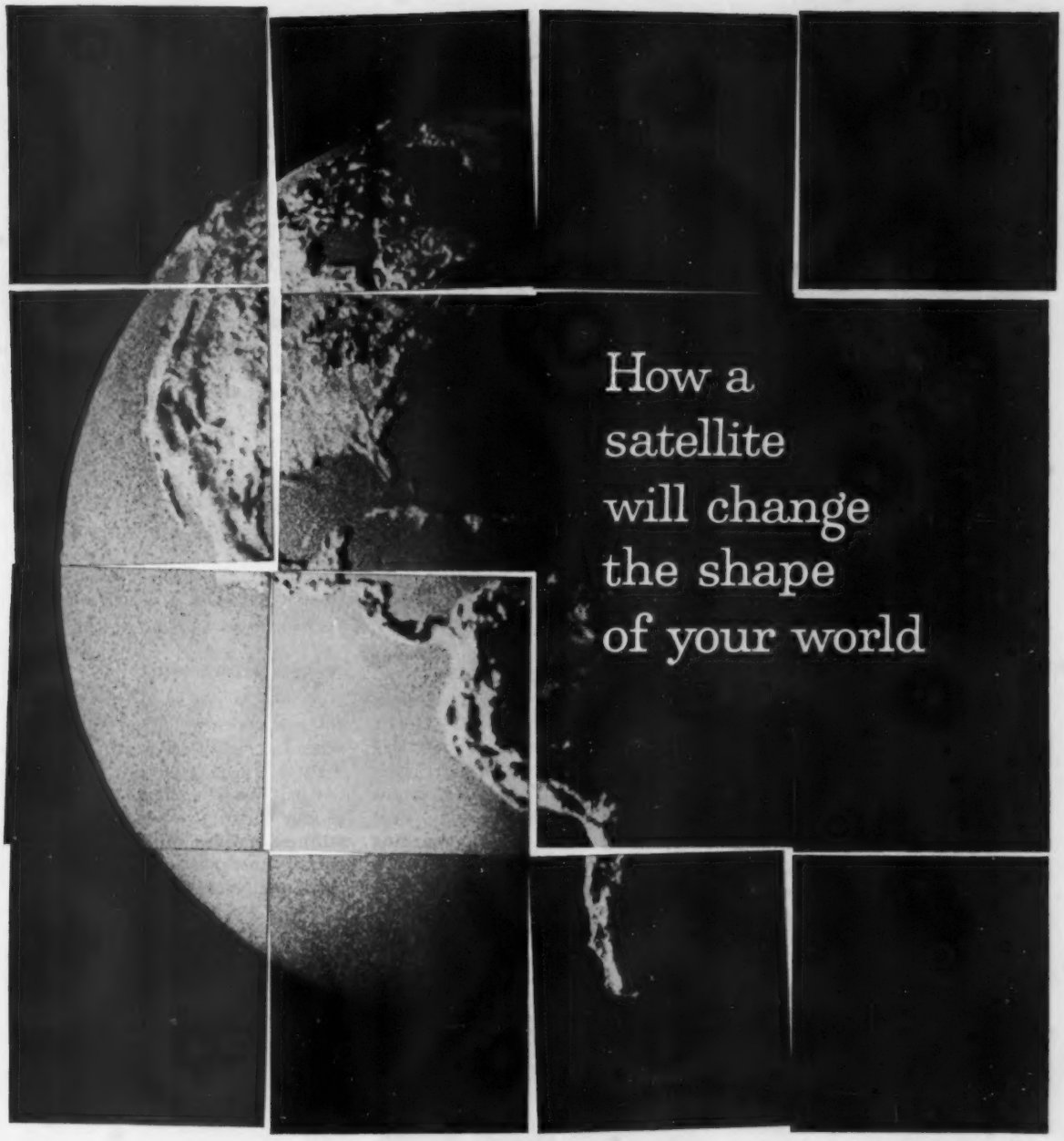
65th Inf. Div. 23-24 Sep. Willard Hotel, Washington, D. C. Write Perry House, Bendersville, Pa.

100th Inf. Div. 9-11 Sep. Henry Hudson Hotel, New York, N. Y. Write Thomas C. Burdett, 114 S. Main St., Taylor, Pa.

104th Inf. Div. 2-5 Sep. Statler-Hilton Hotel, Boston, Mass. Write Howard S. Bedney, 695 Hewlett St., Franklin Square, N. Y.

VII Corps Veterans Assn. 4-8 Sep. Shroder Hotel, Milwaukee, Wis. Write S. C. Hutchinson, 706 Lafayette Ave., Colonial Heights, Va.

Merrill's Marauders. 2-4 Sep. Treadway Inn, St. Davids, Pa. Write David Hurwitt, 22 Basket Lane, Hicksville, N. Y.



How a satellite will change the shape of your world

The "Doubting Thomas" who questions the practical value of today's space shots is answered by a growing list of useful satellites...

Just as a military need for radar helped you have TV sooner, so you can expect peacetime benefits to come from rocket and missile research.

Space probes have already revised our concept of Mother Earth's figure. Now geographers suggest maps made by camera from a cartographic satellite. It would give us the first completely accurate map of the world—a project of major value in defense.

While the map-making satellite is still to come, a rocket that can orbit it—the Douglas *Thor*—is already called "workhorse of the Space Age." It has been successful in more than 90% of its firings. It boosted the first nose cone recovered at ICBM range, and is already deployed at NATO sites abroad. Now the Douglas *Delta*, NASA's advanced research version of *Thor*, is ready to probe even deeper into space.

A series of satellites which will add to our knowledge of the world we live in are going into orbit. A major role in this research goes to the Douglas *Delta*, a research version of *Thor*.

DOUGLAS

MISSILE AND SPACE SYSTEMS • MILITARY AIRCRAFT • DC-8 JETLINERS • TRANSPORT AIRCRAFT • AIRCOMB® • GROUND SUPPORT EQUIPMENT

ARMY irons in the fire

AUTOMATIC TEST EQUIPMENT

A demonstration of advanced multi-purpose test equipment, which automatically checks out the components of Army missile systems, has been successfuly demonstrated by Radio Corporation of America. The new equipment checked out a "black box" subsystem of the Army's Hawk, containing 115 components and 17 electron tubes, in five minutes. This compares with 240 minutes required for a manual check of the same equipment. When a fault was introduced into the system, the new equipment was able to isolate the faulty component in another two-and-one-half minutes. Units of the Lacrosse and Corporal systems also were successfully checked in the demonstration. The equipment also is designed to check out the Nike Ajax and Hercules systems. The equipment is divided into two categories: Digital Evaluation Equipment (DEE) to test electrical and electronic components, and Mechanical Evaluation Equipment (MEE) to test mechanical, hydraulic, and pneumatic functions. Each of the two units, which can operate individually or can be integrated to function as one system, can be rack-mounted in a standard two-and-one-half-ton truck.

SOIL STUDIES FOR MOBILITY

The Army is conducting studies of the soil—many times ground mobility's worst enemy. At the Army Mobility Research Center at Vicksburg, Miss., Army scientists are trying to learn more about how soil reacts to the weight, driving, turning, and breaking forces of military vehicles. One of the specific aims of the study is to learn at what stage of continued traffic and under what moisture conditions a section of soil will break down and refuse to provide traction. Although wheeled vehicle performance has improved through the years with larger and more flexible tires, no significant changes in traction principles have been made in half a century. The Army Engineers conducting the tests will attempt to determine the magnitudes and distribution patterns of stresses induced in soils by moving vehicles and the means of measuring the ability of soils to resist these stresses.

ANTIMISSILE GUIDANCE AID

A 50-pound gyroscopic Far Infrared Scanner, which is adaptable for anti-ICBM missile guidance or interplanetary navigation, has been developed by the Martin Co. Although infrared detection has generally been concentrated on sensing objects of relatively high temperatures, a new laboratory technique in crystal growth makes the Martin development capable of detecting objects of very low temperatures. In its antiballistic application, the unit will be able to sense heat emanating from an approaching enemy ICBM nose cone, distinguish this heat from bogus heat or flare decoys, and guide an antimissile missile to target intercept by means of a sensitive electromechanical system.

500-FOOT LAND TRAIN

Production has begun on a 13-car 560-foot overland train which will be the Army's largest rubber-tired land vehicle. The new vehicle, being produced by R. G. LeTourneau, Inc., will ride on 54 tires, each 10 feet in diameter. Completion of the new carrier will give the Army a cargo vehicle capable of operation over varied terrain in remote areas, where supply routes are long, fuel supplies limited, and roads sometimes non-existent. Each of the 54 independent-drive wheels will have a high-torque electric motor geared directly to its rim. Each electric wheel will receive power through flexible electric cables, thus space and length limitations associated with mechanical power trains are virtually eliminated.

TOUGHER HELMET LINER

A new helmet liner for combat soldiers, which would have ballistic-resistant qualities, may be near reality. The new helmet would be treated by a new plastic resin blend to give ballistic-resistant nylon the stiffness needed to mold it into helmet liner shapes. Resistant to shell and grenade fragments, the

Scale model of overland train. The jeep and driver suggest comparative size.

View of the city of San Juan, Puerto Rico

NEW UNDERSEA TELEPHONE CABLE TO PUERTO RICO AIDS DEFENSE

In addition to its social and business usefulness, the new submarine telephone cable opened recently to Puerto Rico benefits the nation's defense efforts as well.

For it provides a dependable communications link for military and civilian use between the mainland and an important territory.

This new cable is the deepest telephone cable in the world, at one point dropping to a depth of five miles below the ocean's surface. The cable project was undertaken jointly by the Long Lines Department of American Telephone and Telegraph Company and the Radio Corporation of Puerto Rico, a subsidiary of International Telephone & Telegraph Corp.

The Puerto Rican telephone cable joins many others laid in the past few years—to Hawaii, Alaska, England and Europe—and provides another element of the world-wide communications network we are helping to develop for both civilian and military use.

BELL TELEPHONE SYSTEM

Sperry's new electron "gun." Intensity of the electron beam, emitted by the white cathode face at center of "gun," is the equivalent to a concentration of five million 40-watt light bulbs. Initial tests in super-power radars indicate that it may extend the operating life of large radar tubes by thousands of hours.

new liner would replace the present cotton fabric liner familiar to all soldiers. Production tests are now being run at the Army Quartermaster Research and Engineering Command, Natick, Mass., on a new catalyzed resin blend which reduces the time and cost required by previous methods. Also under study are means to eliminate some of the difficulties inherent in nylon-protective devices: nylon must be cut into pinwheels with eight broad arms as the first step in preparing it for molding. As a result, considerable material is wasted in cutting. Efforts are being made to weave the material into pinwheels without cutting. Also under study are ways of working olive drab coloring into the nylon fabric and into the laminating plastic resins, thus eliminating a painting step in production.

MOBILE ROTORCRAFT TEST UNIT

A mobile test facility, which obtains data comparable with wind tunnels, has been developed for the Army by Cornell Aeronautical Laboratory to obtain accurate aerodynamic data on experimental rotorcraft and ducted fan aircraft. The new unit is composed of a large flat bed trailer which is towed by a truck tractor at speeds up to 60 mph. During tests, the rotorcraft is supported by a tower mounted on the trailer bed. A six-component balance system atop the support tower measures lift, drag, and side forces, in addition to yawing, rolling, and pitching moments. Although primarily designed to study experimental rotorcraft static and dynamic stability characteristics in forward flight, autorotating flight, and hovering, the mobile unit is versatile enough to permit investigation of many other rotorcraft problems. The test platform will accommodate full scale helicopters and flying platforms prototypes having gross weights up to 3,000 pounds and rotor diameters up to 17 feet.

Modular card that does as much work as all the 23 conventional printed-circuit boards spread on the table is held by Republic Aviation's Joseph Maciorowski. The dice-size plastic electronic components are said to be particularly suitable for missile guidance systems which call for extensive computer "logic" within severe space and weight limitations. The half-inch modules, each holding from 12 to 18 components and weighing only two grams, will be used in the guidance system of the AN/USD-4 Swallow reconnaissance drone Republic is building for the Army Signal Corps.

hot sparks

Hughes Aircraft Co. has developed for the Army a new electronic ear which can pick up faint radio signals from interplanetary rockets. The 25-pound ruby maser is considered to be one of the most sensitive listening devices invented to date. The name ruby maser comes from the special two-carat synthetic ruby which is the unit's heart, and from the scientific phrase describing it: Microwave Amplification by Stimulated Emission of Radiation. Earlier masers were bulky and complicated, required a magnet weight up to 500 pounds, and cost more than $4,000. The new maser does the same job with a 12-ounce magnet that costs $10.

The Signal Corps has developed an experimental weather-observing system that instantly locates and rapidly reports lightning discharges associated with severe storms over most of North America. The equipment is now undergoing service testing at Kansas City and six detector stations located at various Air Force bases. The detector stations use special radio receivers to pick up static generated by lightning, register time and compass direction, and relay the information to the central monitor in Kansas City.

Bell Aircraft has gone into the drone business after signing an agreement with Nord-Aviation, S.A. of France which gives Bell an option for the U. S. manufacturing rights of Nord's supersonic CT-41 and subsonic CT-20 target missiles. Bell also will receive from Nord necessary engineering assistance in the use of the French company's techniques in ramjets and high-performance flight articles.

The latest electronic equipment available to Army field commanders will soon receive a complete test under combat conditions at Fort Huachuca, Ariz., under a contract award to Pan-American World Airways, Inc. Pan-American will set up and operate a facility for surveillance drone and electronic environmental testing to determine the reaction of the latest equipment when deployed on a nuclear battlefield.

Sylvania Electric Products, Inc., has announced the development of a high-speed switching transistor, capable of surviving shocks in excess of 20,000 times the acceleration of gravity. The transistor is designed for use in telemetered torpedoes, projectile fuzes, electronically guided high-impact missiles, and other applications where extreme acceleration shocks are encountered.

ARMY books

SERVES THE CAUSE OF HISTORY

UNITED STATES ARMY IN WORLD WAR II
The War Department: Strategic Planning for Coalition Warfare, 1943-1944
By Maurice Matloff
Office of Chief of Military History, 1960
640 Pages; Illustrated; Maps; Index; $5.00

Reviewed by

FORREST C. POGUE, who is Director of the Research Center, George C. Marshall Research Foundation.

Moderation characterizes Dr. Matloff's excellent study of World War II strategy during the period 1943-44. While he espouses no particular cause, he emphasizes the forceful leadership of General George C. Marshall in the formulation of Allied strategy. In explaining the factors which gave rise to American proposals, he answers in effect a number of sweeping charges in recent books by Sir Arthur Bryant and Field Marshal Montgomery although they were published after his manuscript was completed.

The casual student of war may tire of the author's detailed treatment of "direct" versus "peripheral" strategy in the European area. But only by careful examiation of American arguments against the background of our interests in the Pacific and against the domestic situation can one find a corrective to some British accusations.

Dr. Matloff makes clear that more was involved in American insistence on the cross-Channel approach than stubbornness or naivete. Back of the fear of the indirect or attritional strategy favored by the British was "the growing realization of the ultimate limits of U. S. manpower . . . It is true that more divisions could have been mobilized, if necessary, to fight an attritional—in Army terms an indecisive—war, but it is also true that this would have cut into production for American and Allied use and the high American standard of living both for the civilians and for the armed forces, and ultimately would have had effects both on domestic politics and on relations with the Allies in the coalition."

To Alanbrooke and his supporters, the shift of men and landing craft to the Pacific represented a frivolous attitude on the part of the Americans and a weakening of agreed-on strategy. Indeed, his writings betray an almost complete lack of appreciation of special U. S. problems and interests in that area. To Marshall and his staff—no less than to King—it seemed important "to keep the war against Japan a dynamic, if limited war . . . not enough to conflict with 'backing Germany first' but enough to assure that, upon the defeat of Germany, Allied strength might be concentrated to defeat Japan rapidly."

With the decision to keep its manpower demands within limits, the U. S. found itself increasingly dependent on Soviet efforts. When, in 1943, the Soviet forces showed they could contain the German threat in the East, earlier troop estimates based on the possibility that Britain and the U. S. might have to face the Axis alone—were discarded. This meant a greater emphasis on the importance of Soviet ground troops to Allied success against Germany and Japan. Secretary Stimson, early in 1944, expressed the fear that the Russians might stop their advance once they had regained their former boundaries. He suggested that it might be necessary to form new divisions. Marshall, while noting that "Soviet numerical preponderance" was one of the factors on which we had staked the success of the Normandy landings, doubted if they would stop their drive to the west.

All this did not mean that the Americans were completely happy about relations with the Soviet Union. In the spring of 1943, Marshall expressed concern over possible postwar chaos in Europe if Western and Soviet advances did not keep pace with each other. At least one member of his staff felt it was essential that we get to Berlin first. Both General Marshall and his head of war plans, General Handy, believed it was necessary that we be strong enough at the peace table to make our wishes felt.

In his discussions of postwar possibilities, Dr. Matloff includes an interesting map showing the proposed lines of occupation zones in Germany as drawn by President Roosevelt in November 1943. By it the United States would have occupied northern Germany as far east as Berlin and as far south as the general line Mainz-Bamberg-Bayreuth. The British would have had the area to the south and the Russians would have occupied the area east of Berlin.

The author spells out the great differences which existed between the British and the Americans in regard to the importance of China and points out that if we were lacking in political realism about European affairs, the British Chiefs of Staff were equally so about China. He suggested as a possible fruitful topic for further study the possibility that some of the Soviet demands on China may have stemmed from Stalin's realization at the time of the Teheran-Cairo meetings that the British and Americans were not in accord as to the backing they would give Chiang Kai-shek.

Proponents of the view that the Pacific was systematically neglected by officials in Washington get short shrift from Dr. Matloff. Writing of the war in 1943, he declares: "MacArthur and Nimitz were far from being forced to fight on a shoestring when compared with the European commanders. After two years of war, the balance of U. S. forces and resources between the European and Japanese

arenas was fairly even." The advantage of the former in Army ground troops and Army air forces was counterbalanced by the preponderance of naval forces, Marine ground forces, and Navy and Marine aviation in the Pacific.

The author uses the same judicious, documentary approach which is found in his earlier writings on World War II strategy and plans. It may not be as exciting as the name-calling exhibitions in volumes by some of the war's leading figures, but it better serves the cause of history.

AND THEN FREDERICKSBURG

FROM CEDAR MOUNTAIN TO ANTIETAM
By Lt. Gen. Edward J. Stackpole
The Stackpole Company, 1959
466 Pages; Illustrated; Maps; Index; $5.95

Reviewed by

BRIG. GEN. DONALD ARMSTRONG, Past President of the American Military Institute, who reviewed other volumes in this series.

On 17 September 1862, General Lee's five-week offensive reached its climax at Antietam Creek. The Army of Northern Virginia had played for high stakes, but the martial gamble ended with Lee's ultimate withdrawal from the game in spite of the considerable assistance his opponents had given him. General Stackpole's study of the campaign is a careful and well-documented analysis of generalship and strategy, significant even in the Atomic Age. The author has seen much military history, he is well aware that a surfeit of tactical detail is interesting for the antiquarian, but for today's professional soldier with little time for reading, the greatest good must be squeezed out of the hours allotted to history.

General Stackpole's latest book helps the reader achieve that end as successfully as his earlier studies of the Civil War. Generals have their characters and intellects and experiences. General Stackpole wants the reader to see how their advantages and handicaps in these respects make one General Lee and another General Pope, one Stonewall Jackson and another George B. McClellan.

Time and chance play their roles. Even logistics finds its way into General Stackpole's pages. And the psychology of the American soldier in action is a by-product of his observations.

The story opens with a brief resume of the Peninsular Campaign. McClellan's failure led Lincoln to reorganize his army in July 1862 with Major General Henry W. Halleck as General-in-Chief. The trouble with Halleck was that "he liked to counsel and advise but seemed constitutionally incapable of making decisions in his new role." Then John Pope, full of sound and fury, learned that bombast *before* battle signified nothing *in* battle. Unfortunately for him, his opposite number was Robert E. Lee, who "was fast becoming an expert in taking calculated risks by splitting his forces and reassembling them for the pay-off battle."

Eventually McClellan reappears at South Mountain and Antietam. The stereotype of this unenterprising general is reinforced by General Stackpole's appraisal of his leadership. He was never the man to compensate for inferior numbers and resources by mobility, surprise and economy of force. But the author is just. His well-told story of Harpers Ferry describes that episode of military ineptitude possibly without sufficiently fixing on higher authority the blame for the surrender and therefore for the failure to win a victory at Antietam.

General Stackpole's usual visual aids in numerous well-drawn maps (by Colonel Wilbur S. Nye) and contemporary sketches and photographs make this excellent and useful critique of Civil War maneuvers a worthy companion to his three earlier volumes.

THE ROAD TO VICKSBURG

GRANT MOVES SOUTH
By Bruce Catton
Little, Brown & Company, 1960
564 Pages; Maps; Index; $6.50

Reviewed by

MAJ. GEN. H. W. BLAKELEY, who has reviewed several books on U. S. Grant for ARMY.

"Tomorrow I move South," wrote newly promoted Brig. Gen. U. S. Grant to his wife on 15 August 1861. "To move south," says author Bruce Catton, "was Grant's compelling motive, then and thereafter."

This book is the second in a biography of presumably three volumes, which began with *Captain Sam Grant,* written by Lloyd Lewis and published in 1950, shortly after Mr. Lewis died. It covers the period from the summer of 1861 to the capture of Vicksburg in July 1863.

In the little book, *Letters from Lloyd Lewis: Showing Steps in the Research for His Biography of U. S. Grant,* which Mr. Lewis's publishers also brought out in 1950, it was stated that "Mr. Lewis had amassed ninety per cent of his notes for Volumes II and III which would have taken his subject through the surrender of Lee at Appomattox." There is, of course, a vast difference between notes and a complete text, and in a foreword to the current volume the publishers say that Mr. Catton "spent many months analyzing the Lewis notes, conducting additional research, and writing the narrative."

The result is, predictably, a well-written, comprehensive story, but the fact is that it is becoming increasingly difficult to write much that is new about the battles and leaders of the Civil War—although many will try in view of the approaching centennial. The period covered by the work under review has, for example, been well presented in Volumes III and IV of *Lincoln Finds a General,* by Kenneth P. Williams. There are differences, of course. Professor Williams gives more military detail; Mr. Catton, more of a picture of Grant the man.

Mr. Catton sticks to his theme, but there are interesting comments on others, notably Generals Halleck and Charles F. Smith.

Halleck is emerging in current Civil War studies as something more than the "cautious, witless pedant," "a thorn in Grant's side," of General J. F. C. Fuller's *The Generalship of U. S. Grant.* Kenneth P. Williams was one authority who definitely shifted from this completely unfavorable verdict. Catton calls Halleck "a strange character," "waspish, petulant, gossipy," and a buck-passer, but "on balance, however, Halleck in the long run would do Grant more good than harm."

General Charles F. Smith seems to have lost a place in history be-

cause of his early death from what was apparently a minor accident. He was Commandant of Cadets at West Point when Grant was a cadet there. He was "a Regular of Regulars," a fine-looking, courageous leader, who served loyally under his junior. Sherman went so far as to say that had Smith lived, "Grant would have disappeared to history after Fort Donelson."

GLORY HUNTER

CUSTER
By Jay Monaghan
Little, Brown & Company, 1959
469 Pages; Illustrated; Maps; Index; $6.00

Reviewed by
LT. COL. HENRY SPENCER MERRICK, who is a contributing editor of *Military Affairs* and Historian of the Society of Indian Wars.

It must be difficult for an author, even one as skilled as Jay Monaghan, to maintain a purely objective attitude in writing the biography of such a controversial personality as General George Armstrong Custer, but he has done very well.

A few incidents have been ignored, glossed over, or explained to the advantage of the hero. The abandonment of Major Elliott and his detachment at the Washita, shooting of deserters in Kansas or hanging Mosby's men (which he probably didn't) do not seem so heartless the way our author explains them, and the Mo-nah-se-tah charges are dismissed as "gossip" and missing records. On the other hand, he is very critical of Captain Benteen, generally recognized as a most able officer, and calls him a "taciturn, sardonic soldier" albeit admitting his ability. There are a few minor errors, especially in connection with the Little Bighorn. For example, the now discredited story that Tom Custer's heart was cut out, is stated as fact, and Captain Weir marches south instead of north to find Custer.

The book is well written, not as flowery as another comparatively recent biography of Custer. It evinces extensive research and is much more reliable than the original Whittaker biography hurriedly prepared in 1876 to capitalize on the publicity following the battles of the Little Bighorn.

The author uses the I-was-there style, and often it is difficult to determine where facts end and skillful assumptions begin. This makes for easy, smooth reading but may confuse the student, although occasionally a tactfully inserted word or phrase puts the reader on guard. Very properly, the extensive Civil War service of our hero is stressed without slighting his later limited Indian service.

Fearless, impetuous, tireless, egotistical, ambitious, careless with facts and money, Custer seldom evidenced any strategic ability as a cavalryman in the Civil War. It was only "Custer's Luck" that time and again saved him, until the last day, from the normal results of unsound tactics. He was quick to take advantage of openings and gloried in leading charges, even when greatly outnumbered. He seemed to bear a charmed life, having many horses killed under him but was wounded only once.

Selected Check List of the Month's Books

This is a run-down of some of the books we have recently received.

BRAZEN CHARIOTS. By Major Robert Crisp. W. W. Norton & Company. 223 Pages; Maps; $3.95. Personal experiences during the 28-day battle of Operation Crusader, which began 18 November 1941, against Axis forces at the borders of Egypt and around Tobruk. The author fought the battle from his tank turret.

THE BREAKFAST WAR. By Rupert Furneaux. Thomas Y. Crowell Company. 240 Pages; Illustrated; Maps; Index. $4.50. The 143-day siege of Plevna in 1877, during the Russo-Turkish wars, and how it was reported by a group of international war correspondents.

CLIMAX AT MIDWAY. By Comdr. Thaddeus V. Tuleja, USNR. W. W. Norton & Company. 248 Pages; Illustrated; Maps; Index; $3.95. The naval-air battle of 4-6 June 1942, which ended Japan's offensive at sea. The author interviewed some of the key survivors to prepare a blow-by-blow account.

THE GREAT INVASION. By Jacob Hoke. Thomas Yoseloff, Inc. 613 Pages; Illustrated; Maps; Index; $8.50. First published in 1887, this is among the most authoritative works on Gettysburg. Hoke lived in Chambersburg, visited both armies, toured the battlefield, and questioned officers of both sides. An eyewitness report.

THE HUNDRED YEARS WAR. By Edouard Perroy. Indiana University Press. 376 Pages; Index; $5.75. The struggle between France and England from 1338 to 1453, which included Sluys, Crecy, Poitiers and Agincourt—the period which saw the end of cavalry's supremacy and the first general actions decided by artillery.

NARVIK. By Capt. Donald Macintyre, RN. W. W. Norton & Company. 224 Pages; Illustrated; Maps; Index; $3.95. Detailed examination of the campaign in Norway emphasizing the efforts of Germans and British to seize and hold strategic Narvik in the spring of 1940. The tactical lessons proved valuable to the Allies.

SOLDIERS AND GOVERNMENTS. Michael Howard, editor. Indiana University Press. 192 Pages; Index; $3.75. Successes and failures of 27 nations in their search for adjustment of relations between civilian authority and armed forces. Reissue. Reviewed in ARMY for April 1958.

THE TANK COMMANDER'S GUIDE. By Lt. Col. John G. Cook & Dr. Robert A. Baker. The Stackpole Company. 488 Pages; Illustrated; Index; $3.50. Second edition, expanded to include latest equipment, including the M48A2 tank and all other pertinent information. The authors are on the staff of the Armor Human Research Unit. Reviewed in ARMY for December 1958.

THE THUNDER OF THE GUNS. By Capt. Donald Macintyre, RN. W. W. Norton & Company, 352 Pages; Illustrated; Maps; Index $3.95. The development of capital ships from ironclad frigates to battleships with some of their great battles.

VERMONT GENERAL. Otto Eisenschiml, editor. Devin-Adair Company. 340 Pages; Illustrated; Maps; Index; $6.00. The home letters of Edward Hastings Ripley, Civil War brigadier whose service began at 25 when he organized a company at college. He led U. S. forces into Richmond on 3 April 1865.

Custer's high reputation as an Indian fighter is hard to understand. He never saw a hostile until after the war, when he was nearly thirty, and aside from his massacre of Black Kettle's village on the Washita in 1868 and some minor engagements during the Yellowstone Expedition of 1873, he never had a real Indian battle until his last, which his inept handling of the troops foredoomed.

There are a few good illustrations and extensive notes of little interest except as authorities. Clear maps of eastern Virginia and the Sioux country are helpful, but do not provide sufficient detail. On the whole, an interesting and outstanding biography of one of our most picturesque soldiers.

THE REAL WOLFE

QUEBEC, 1759
By Col. C. P. Stacey
St. Martin's Press, 1959
210 Pages; Illustrated; Maps; Index; $6.00
THE CAPTURE OF QUEBEC
By Christopher Lloyd
The Macmillian Company, 1959
175 Pages; Illustrated; Maps; Index $4.50

Reviewed by

LYNN MONTROSS, author of two books on the Revolutionary War, whose *War Through the Ages* will soon appear in a new edition.

Britons and Americans have written many books about the capture of Quebec in 1759, but this is the first time in recent years that a Canadian historian has tackled the subject. Colonel C. P. Stacey's name may be familiar as former head of the Historical Section of the Canadian Army.

Published at about the same time, Christopher Lloyd's book is one of the new "British Battles" series.

It seems to be generally agreed that neither Wolfe nor Montcalm had much use for colonials. Wolfe referred to the American Rangers as "vermin," and Montcalm described his Canadian auxiliaries as "independent, lying, boastful, very good at skirmishing, very brave when behind a tree and very timid when not under cover."

Colonel Stacey comes to the defense of the Canadians by commenting that they "had the will to defend their country; and in the coming struggle the man-power of this remote and forlorn community was to be mobilized for action to an extent achieved by no twentieth-century totalitarian state."

During the battle on the Plains of Abraham the Canadians inflicted more casualties on the enemy than did Montcalm's regulars. The American Rangers in their turn had a large share in Wolfe's victory, even though they have received little credit from him or historians.

Christopher Lloyd glosses over such shortcomings of the British general as his narrow outlook, abusive tongue and harsh military ethics. Colonel Stacey, however, quotes from a letter written by Wolfe before a shot was fired: "If, by accident in the River, by the Enemy's resistance, or, from any other cause, we find that Quebec is not likely to fall into our hands (persevering however to the last moment) I propose to set the Town on fire with Shells, to destroy the Harvest, Houses & Cattle, both above and below, to send off as many Canadians as possible to Europe, & to leave famine and desolation behind me."

That these were not empty threats was proved when Wolfe actually did make a desert out of the fertile parishes on both sides of the river.

Both authors are in accord when debunking the romantic tale of Wolfe reciting Gray's *Elegy Written in a Country Church-yard* during the river crossing on the eve of battle. Another illusion is punctured when Colonel Stacey discloses that the path taken by the Redcoats up the "cliff" was by no means as steep as legend would have it. It can be climbed by an automobile today as a photograph indicates.

Wolfe's reputation for generalship is also cut down to size. His first plan of attack, a badly managed attempt to cross the Montmorency River north of Quebec, was repulsed with grievous losses on 31 July. His three brigadiers rejected his next several plans; and the idea of crossing the St. Lawrence west of Quebec was their concept which at first he opposed. When battle was joined, however, Wolfe's leadership and tactics were magnificent. Apparently he deliberately courted the death in action which was to give him immortal fame.

Colonel Stacey's book is the better of the two, but the reader would not go wrong with either. Both are distinguished for more and better maps and illustrations than are usually found in a book of military history.

PUNCHED CARDS AND SICK LISTS

TABULATING EQUIPMENT AND ARMY MEDICAL STATISTICS
By Brig. Gen. Albert G. Love, Col. Eugene L. Hamilton, and Ida Levin Hellman
Government Printing Office, 1959
202 Pages; Illustrated; Index; $2.00

Reviewed by

LT. COL. DOUGLAS LINDSEY, who was a combat surgeon during WW II and is now Director of Medical Research, U. S. Army Chemical Warfare Laboratories.

The familar punched card, and electrical accounting machines, are somehow regarded as trappings of modern automated life, but the U. S. Army's Medical Department was using Hollerith cards and electrical tabulating equipment in 1888.

Surgeons and adjutants have sweated over and sworn at formal medical records and reports since 1818, but for two good reasons: care of the individual soldier, and the provision of a valid basis on which to establish and modify policy for the conservation of the fighting strength of the Army at large. Tags, sheets, and cards make it possible to select sound personnel for enlistment or commission; to guide their treatment when they are wounded or become ill; to support the planning to insure that medical units and troops will be available when and where required; and to permit the rational design and evaluation of such diverse things as a new vaccine, a new surgical procedure, or a new armored vest.

This is the story of Army medical records and their processing. The story is interestingly and enthusiastically told. This one would expect, for General Love has given nearly 50 years of his life to medical statistics; Colonel Hamilton is charged with the job today; and Miss Hellman is an accomplished historical writer.

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AIMS AND OBJECTIVES

THE ASSOCIATION OF THE U. S. ARMY shall be an organization wherein all who are in accord with its objectives may join in the exchange of ideas and information on military matters, and in fostering, supporting, and advocating the legitimate and proper role of the Army of the United States and of all its branches and components in providing for and assuring the Nation's military security.

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CHAPTERS

FOURTH REGION OPERATIONAL

At the regular quarterly meeting of the Council of Trustees, 21 March, the By-Laws of the Fourth Region were approved and the Region became an official AUSA organization. At the 1959 Annual Meeting, Resolution No. 11 authorized the formation of six AUSA Regions to coincide with the six army areas. The Fourth Region is the first to organize under the authority of the resolution.

Twenty-two delegates representing 14 chapters met at Fort Hood on 28 January to organize the Region, and to initiate state organizations within the Region. The Fourth Region has already been active in organizing new chapters and in solving jurisdictional questions between chapters. Regional headquarters is in San Antonio; President is Brig. Gen. W. J. Sutton, USAR. Gen. Bruce C. Clarke, CG, USCONARC, spoke to the assembled delegates during their organization session.

BOOST FOR RETIRED PERSONNEL

In a "canned" editorial for local newspapers and radio stations, Braxton Bragg Chapter has launched a campaign in its 14-county area to explain to businessmen and other citizens the advantages of having retired officers and enlisted men settle in the community. Stating that the retired soldier is an individual industry, since he receives money without employment, the editorial points out the desirability of having these people in the community, suggests that employment opportunities be made available, and that a friendly atmosphere be built so that those retiring will consider the area as a place of residence.

The advantages of the campaign are obvious: the community gets desirable citizens who will never be a charge on the local residents; the retired personnel find a welcome that ties them to the area.

"ONE ARMY" PROGRAMS

Maj. Gen. Raymond W. Curtis, CG, II U.S. Army Corps, was principal speaker at Westchester County Chapter meeting

VERDUN, FRANCE. Col. C. A. Leavitt, left, President of Verdun Chapter, and Lt. Col. Ross F. Powell, at meeting of Chapter on 27 January, where Colonel Powell was guest speaker.

FORT HOOD, TEX. Delegates from 14 AUSA chapters in Fourth Army area at meeting 28 January at which Fourth Region of AUSA was organized.

at Fort Slocum. An audience of about 200 heard General Curtis speak on the One Army concept; an additional drawing card was a demonstration of new weapons by two representatives from Springfield Armory.

Col. H. C. Lyon spoke to San Francisco Chapter on the same subject on 7 December; an additional feature of the program was a 30-minute presentation on tape of interrogation of prisoners of war who had been released by the Chinese in Korea.

HOOSIER PLATOON

Indiana Chapter materially assisted the Army Recruiting Service in recruiting a Hoosier Platoon, and received a commendation from the Recruiting Service which said, in part: "The Indiana Chapter of the Association of the U. S. Army has set an example of civilian-military cooperation for which all other chapters should strive to achieve." The Chapter sponsored ceremonies honoring the platoon at Monument Circle in Indianapolis, and sponsored also a luncheon for the platoon members at which the State Adjutant General was the speaker. The platoon, considered an elite unit, will serve with STRAC. The promotion gained the Chapter much favorable publicity, in addition to providing a well-motivated unit for the Active Army.

ROTC ASSISTANCE

When compulsory ROTC was threatened at the University of California, East Bay Chapter moved in on the situation promptly. A special committee was appointed; this committee did a thorough research and fact-finding job, then proposed a resolution which was adopted by the Chapter. The resolution and other information was passed on to the Greater Los Angeles Chapter when it was learned that the hearings would be held in Los Angeles. As of press time the results of the dual-chapter approach were not yet known.

AUSTIN, TEX. Governor Price Daniel (left), is presented his membership card by officers of Texas Capital Area Chapter. Others are, left to right: John Bode, Secretary; Lt. Col. Harry Pollard; Lt. Col. John T. Mahone, President

CHAPTER AWARDS

Headquarters Seventh Army Chapter has instituted an award consisting of a one-year membership in AUSA to be presented to the outstanding soldier in each class at the Seventh Army NCO Academy.

Seattle Chapter presented a special trophy to Maj. Wesley R. Ross, Tacoma, the winner of a rifle match at Fort Lawton. The 141 competitors included reservists and Active Army personnel of X Corps.

Henry Leavenworth Chapter's awards program is a formalized document, covering nine types of awards that run the scale from students to the Patriot of the Year. The program leans toward the promotion of science and incentives for ROTC participation. Plaques are the favored award.

LOCAL CUSTOMS

Overseas chapters, often at a loss for interesting programs, might take a leaf from the book of Ryukyus Chapter. On 25 February, at the Machinato NCO Club, the chapter heard Mr. Theodore A. Christophil speak on "The Customs and Culture of the Okinawan People." Mr. Christophil, a long-time student of the Orient, pointed out the fallacy of attempting to relate Okinawan behavior to American standards, and explained the differences in background and culture that bring about such widely varying outlooks toward life and customs. The approximately 135 members present found the presentation most helpful.

AUSA DISPLAY

Fort Riley-Central Kansas Chapter indicated its customary alertness in setting up an AUSA display for "Operation Big Blast," an extensive map maneuver which included participation by Reserve, National Guard and Active Army troops. Staffs of four civilian-components divisions and two units of regimental size participated in the exercise, and were thus exposed to the AUSA story through the display.

Great Plains Chapter operated a display of weapons and equipment at the Omaha Civic Auditorium that was visited by 39,000 persons; AUSA and Army Recruiting literature was passed out to the visitors.

COMPLETE PROGRAM

Great Plains (Omaha) Chapter's Program Committee produced its report in the form of a chart of activities that included 15 events for the period 26 February to 14 October. The headings include: Date, Activity, Place, Sponsor, and Purpose. This business-like approach to the problems of maintaining member interest, public education in national defense, social gatherings, and fund-raising is assisting materially in making the Chapter an effective AUSA unit.

MISSILE TOUR

One of the features of Detroit Chapter's 10 February meeting was a tour of the Chrysler Missile Plant to see Jupiter and Redstone missiles in production. More than 275 members and guests participated; Col. Willard F. Rockwell, AUSA's Chairman of the Council of Trustees, was principal speaker.

ORGANIZATION CHART

Braxton Bragg Chapter is the first to crash through with a complete Pentagon-style organization chart. The chart may offer other chapters part of the secret of Bragg's new surge in effective AUSA activity; it lists 90 Chapter officers and advisers in 16 boxes. The 90 includes a general, a lieutenant general, a mayor, many noncommissioned officers, and a very liberal sprinkling of persons with the title of "Mr.". With across-the-board participation like this the load is shared and much gets done.

OLYMPIAN FINANCES

Southside Virginia Chapter (Fort Lee) sponsored a basketball game between the Texas Cowgirls and the Fort Lee All-Stars; the Chapter netted $433.50 which will be contributed to the Olympic Fund.

FORT SMITH, ARK. MSgt. Daniel A. Reed, Secretary-Treasurer of local AUSA Chapter, explains to Cub Scout James A. Merton ceremony of Indian Peace Pipe Offering to Four Winds, at annual scout banquet.

PHILADELPHIA, PA. The satellite as a step in evolution of Army signals is discussed with Maj. Gen. Earle F. Cooke (left), Deputy CSigO on his visit to William Penn Chapter's February meeting by Brig. Gen. E. L. Littell, CG, USASSA, and Isidore T. Shapiro, President.

CHAPTER PRESIDENT'S REPORT

William Penn Chapter has a tradition of its outgoing President giving the membership a complete written report on his stewardship during his term of office. The reports have been uniformly good, letting the membership know what the Chapter has accomplished, how it was done, and what needs to be done. Chapter members often complain that they are not kept current with affairs in their own chapter; William Penn members are well informed.

CHAPTER NEWSLETTERS

East Bay Chapter's *Periodic Report No. 7* continues its predecessors' record of being informative in all facets of Chapter interest. Chapter members should be among the best informed in AUSA.

Henry Leavenworth Chapter's quarterly *Newsletter* is attractively presented on letterhead stationery.

Braxton Bragg *Byline* is a four-page effort in large, readable type, combining news and interpretation of material of interest to Chapter members.

Southwest Oklahoma Chapter's *Southwest AUSA Newsletter* is a professional job of four pages, including news on AUSA objectives and informative features.

FORT LEWIS, WASH. Brig. Gen. Harold L. Goss, President of Seattle Chapter, presents CG's special award trophy to Maj. Wesley R. Ross, winner of special rifle match. In center is Col. A. B. Welcher, project officer.

WEST POINT CANDIDATES INVITED

Santa Barbara-Ventura County Chapter had among the guests at its 7 March meeting four young men who are attempting to enter USMA; the Chapter's West Point Committee is operating. The meeting honored the 47th Artillery Brigade (Air Defense); principal speaker was Maj. Gen. Gilman Mudgett, Deputy CG, Sixth Army. Brig. Gen. John T. Honeycutt, commanding the 47th Brigade, spoke on the Brigade's mission.

SERVICE PROJECT

Not covered by AUSA aims and objectives, but a very worthy project indeed, has been started by the Monterey-Tri-County Chapter. The Chapter is opening a special fund to install stained-glass windows in the new Fort Ord Chapel.

ACROSS THE BOARD

William Penn Chapter's 24 February meeting included representatives from every Army activity in the Chapter area, including Reserve and Guard, with a heavy representation of Department of the Army Civilians. Maj. Gen. Earle F. Cook, Deputy Chief Signal Officer, and Brig. Gen. E. L. Littell, CG of USASSA, spoke to the audience, which also viewed films of Signal Corps achievements in the field of satellite communications.

POCKETBOOK IMPACT

Lt. Col. Arthur Ball, comptroller of XVIII Airborne Corps, on 2 February addressed a special meeting of Braxton Bragg Executive Board and civilian financial and professional leaders on the financial impact of Fort Bragg's payroll and purchases. Using charts and briefing techniques, Colonel Ball's message was well received by 29 guests.

GOLF TOURNAMENT

Using methods unique at least in AUSA, Monterey Tri-County Chapter invited key civilians to play on Fort Ord's golf course on 9 March, as a means of gathering together community leaders under conditions under which AUSA and the Army could be presented favorably. Maj. Gen. Carl F. Fritzsche, commanding Fort Ord, and Mr. Joseph B. Fratessa, Chapter President, were co-hosts at the tournament and a barbecue which followed. Many of those invited applied for membership in AUSA.

ROTC COMPANIES

CHARTERING CEREMONIES

Cowboy Company (University of Wyoming) was chartered 24 March with 75 members and more than 75 guests present, including Reserve and National Guard officers and University faculty. Maj. Gen. William S. Biddle, Deputy CG, Fifth Army, presented the charter to Company Capt. Richard P. Timmermeyer. Col. Robert Outsen, PMST, spoke on the objectives of the Company. A 25-piece ROTC Drum and Bugle Corps, and a presentation of colors, featured the ceremony.

FORT BENNING, GA. Maj. Gen. R. H. Wienecke, center, CG, 2d Infantry Division, is bid farewell at annual election meeting of Columbus-Phenix City-Fort Benning Chapter. Others are Maynard R. Ashworth, left, Columbus newspaper publisher, and Mr. T. G. Reeves.

Norwich University Company's charter was presented by Maj. Gen. Ernest N. Harmon, famous World War II combat leader and President of the University, at a banquet meeting on 22 March.

MAP MANEUVER

The March meeting of Montana State University Company took the form of a two-evening map maneuver, based on a Fort Benning problem. The Company members were assigned command and staff positions at division and battle group; members changed assignments for the second night. Telephone and message center service added realism to the exercise, which was conducted by the PMST and members of his staff.

RED CROSS ASSISTANCE

Indiana State College Company (Indiana, Pa.) has taken on the task of sponsoring the campus Red Cross drive, with a goal of total participation of all ROTC cadets. The Company has appropriated funds to provide a ribbon for all cadets who donate to the drive.

MONEY-MAKING SCHEME

Sioux Company (University of North Dakota) is installing a soft-drink machine in the University Armory, and will split the profits with the Air Force unit at the University.

ELLINGTON AF BASE, TEX. Brig. Gen. W. J. Sutton, left, presents charter for San Jacinto Chapter to Col. Temple B. Sebastian, Jr., President. Charlie Kamp, former chairman of Chamber of Commerce military affairs committee, looks on.

DETROIT, MICH. Detroit Chapter members at annual meeting in February. Left to right: Col. Gervais W. Trichel, President; Col. Kenneth Larkey, 46th Division; Mr. Thomas Morrow of Chrysler Corporation; Col. Willard F. Rockwell, main speaker; Brig. Gen. John H. Weber, CG, OTAC; Col. John W. Romlein, CG, 28th Arty Group.

CHICAGO, ILL. Distinguished guests at annual meeting of Chicago Area Chapter on 25 February. Left to right: Maj. Gen. W. W. Quinn, CINFO, main speaker; Brig. Gen. L. H. Whiting, President; Maj. Gen. W. S. Biddle, Deputy CG, Fifth Army.

COMPANY-SPONSORED AWARD

St. Norbert College Company (West De Pere, Wisc.) has established an Outstanding Company Trophy for the local ROTC unit, named in honor of Chaplain (Colonel) Anselm W. Keefe, USA (Ret.). Chaplain Keefe assisted in establishing ROTC at St. Norbert in 1936.

TRAVELING CADETS

Sooner Company (University of Oklahoma) sponsored a visit by the ROTC unit to Fort Sill for orientation and tour of the post. Thirty members of the Company visited the Ordnance School, at Aberdeen PG, Md., on a later trip. This continues a long tradition of traveling instruction by the Company, which has racked up thousands of miles of travel to army installations in the few short years of its existence.

AUSA ROOM

Robert E. Sylvest Company (Northwestern State College, Natchitoches, La.) is furnishing and decorating an AUSA Room at the College.

PUBLIC SERVICE

New York University Heights Company continues its program of service to the University and the public. Its latest activity was to operate the communications system for the University's annual Hall of Fame Debate, using AN/PRC-6 sets borrowed from the Department of Military Science.

WASHINGTON, D. C. Lt. Gen. Arthur G. Trudeau, Army Chief of R&D, meets drum-major George Neffinger of Mt. Vernon Guard at 11 March meeting of George Washington Chapter of AUSA.

TRI-SERVICE MEETING

A Navy speaker, and a drill competition between Army and Air Force ROTC livened a meeting of the Montana State University Company on 21 February. The speaker was Commander Robert Van Horne, USNR, Dean of the Pharmacy School at the University.

SPONSORSHIP OF RIFLE MATCH

Idaho State College Company is acting as campus sponsors for the North Intermountain National Rifle Association Intercollegiate Sectional Rifle Match. Company provides logistical support to the matches as well as offering personal services.

SUMMER CAMP ORIENTATION

Citadel Company's plan is unique in that every member of the Summer Camp Orientation Committee is a senior who attended ROTC Summer Camp in 1959. The Committee's plan included 51 hours of instruction of which 22 hours will be provided by members of the Committee. Approved by the Citadel authorities, the Committee's portion of the instruction includes 6 hours of marksmanship, 7 of map and compass work, 3 hours on crew-served weapons, 2 hours on individual field equipment, 3 hours of individual proficiency training, and 1 hour of general orientation.

"WHO'S WHERE"

John Carroll University Company (Cleveland) is compiling a "Who's Where" of ROTC graduates now on active duty, as a service for the graduates to keep in contact with old friends in the service.

COMBAT FILM SERVICE

A weekly film program, featuring World War II combat actions, and open to non-members, has built considerable interest in John Carroll University Company's achievements on the Cleveland campus.

CATCHING THEM YOUNG

Sooner Company (University of Oklahoma) continues its project of visiting high schools and selling the graduating seniors on Army ROTC. The Company has groups of members visit the high schools, gain contact with seniors, obtain the names of interested students, and deliver recruiting packets.

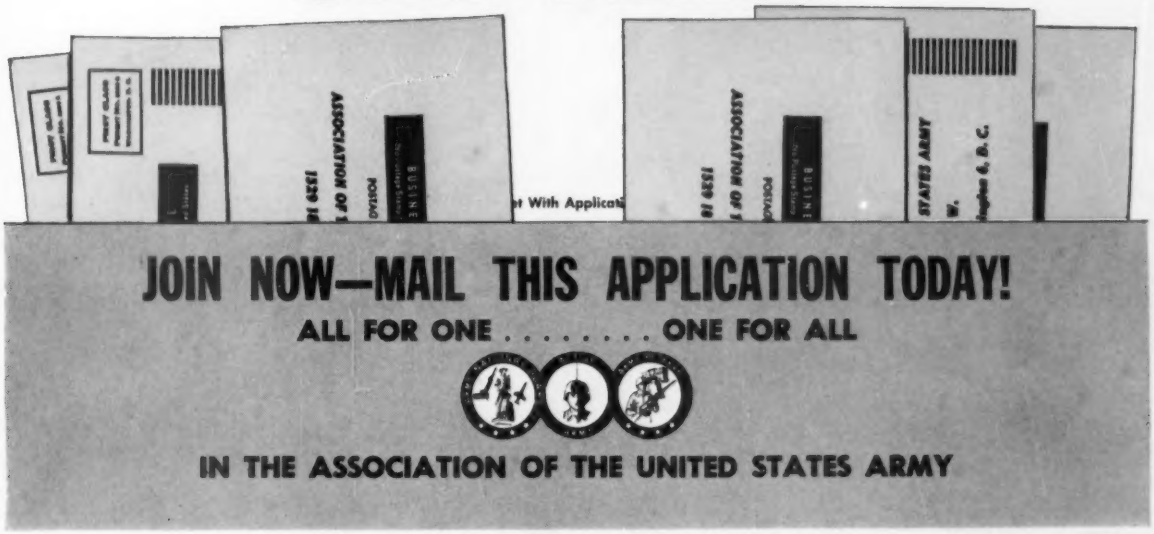
BLUE RIBBON GUEST LIST

Dakota Company's annual banquet on 22 March was notable for a blue-ribbon guest list, in addition to the principal speaker, Maj. Gen. W. S. Biddle, Deputy CG, Fifth Army. Among those present were: Dr. Fred S. Hultz, President of the College; Mr. Ralph Borman, Civilian Aide to the Secretary of the Army; Mr. Martin Kruse, member of the North Dakota Board of Higher Education; Mr. Truman Wold, Past National Vice Commander of the American Legion; Lt. Col. James F. Ulmer, State Director of Selective Service; Maj. Frank Anders, who holds the Medal of Honor; and Miss Norma Carlson, Captain of Guidon, the Company's women's auxiliary. Other faculty and local and state political figures also attended. General Biddle spoke on the necessity for continuing compulsory ROTC.

SEATTLE, WASH. Royal Court at Seattle University ROTC'S Military Ball on 25 February. Standing: Joanne Carlson, Jeanette Fedora, Carolyn Noel; seated: Carol Casey, Queen.

ASSOCIATION OF THE U. S. ARMY

ONE VOICE FOR THE ONE ARMY



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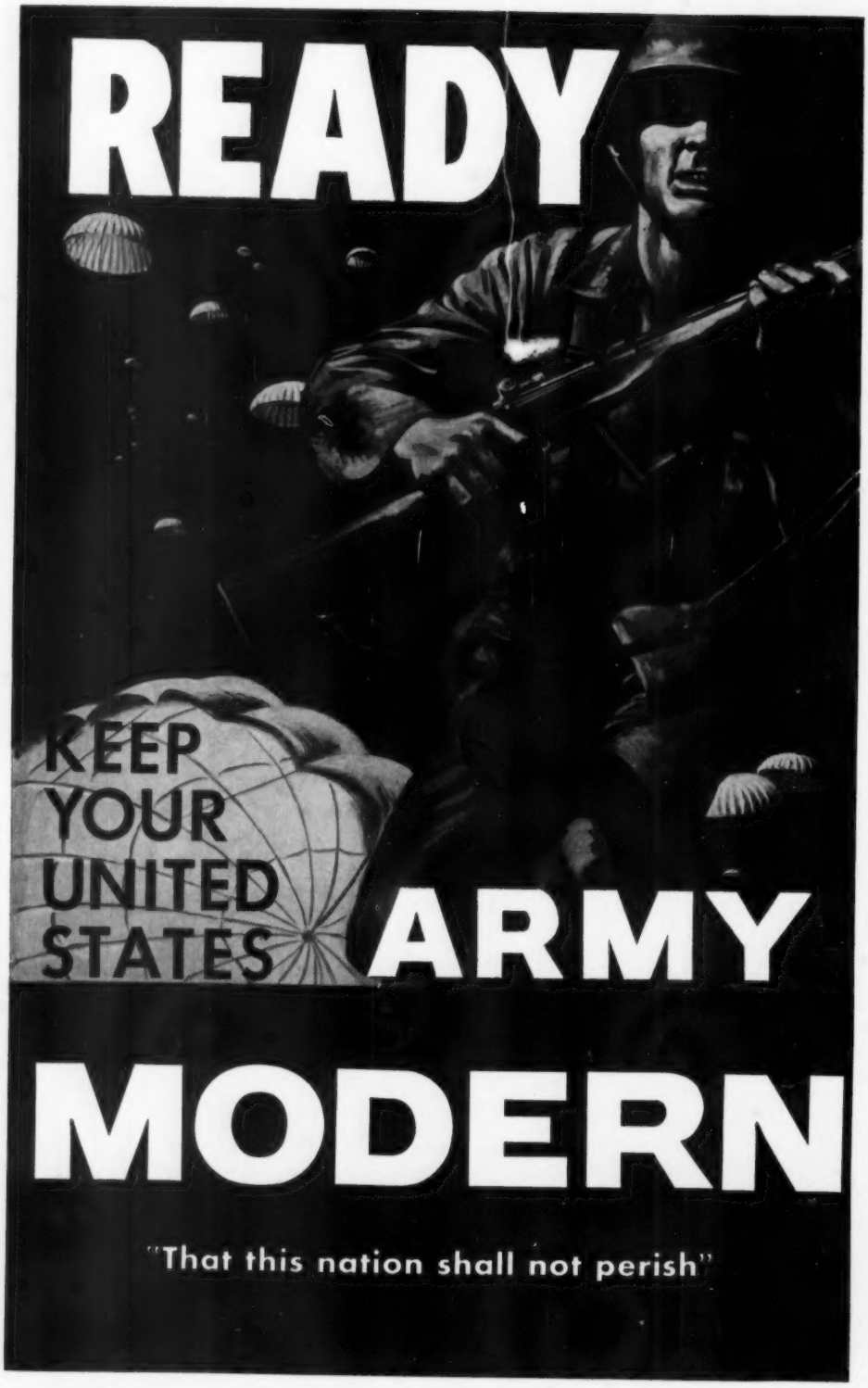
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